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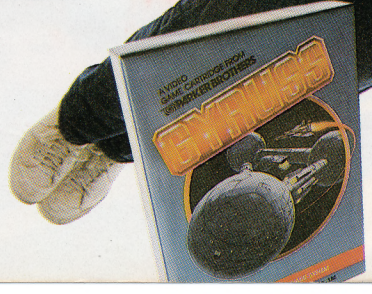

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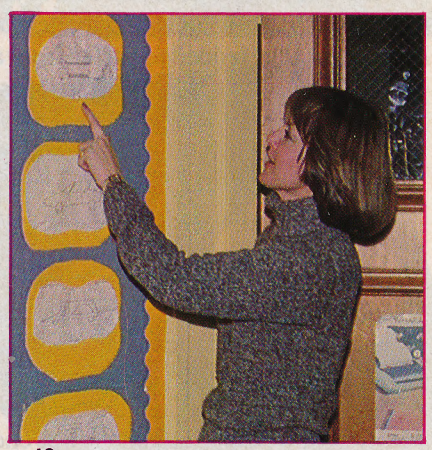

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Cover Photography by Michael Sullivan

ON LINE

There was a time, not so long ago, when computers were the domain of intrepid hobbyists. Then video game systems burst into the spotlight, and the real growth in computers began to take place in the world of business. However, companies such as Atari, Apple, Commodore and Texas Instruments were waiting in the wings with a new breed of personal computers which held out the promise of radically different approaches to everyday activities.

Suddenly there was an instrument which could potentially revolutionize our shopping habits, financial planning and home management, entertainment options and educational training. But the initial models that arrived on the scene were perceived, by the greatest amount of the population, as yet another medium for video game playing.

Admittedly, there were applications in the business community where computers were enjoying dramatic inroads. It was only in their transition to the *real* world that they tended to suffer from a general lack of understanding. Most families were willing to accept the notion that personal computers would be an integral part of their offspring's future, but to what degree remained an uncertainty.

In the intervening years the focus has become much clearer regarding the role of home/personal computers. Although they still carry the legacy of being next generation game machines for many people, especially the lower end models, even this has substantially changed with the appearance of a vast array of software covering almost every conceivable subject.

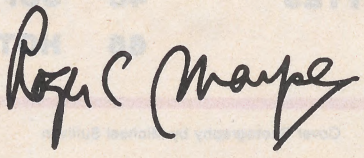
Interestingly, although much of the growth has been in the area of business software such as word processing, spreadsheets and other financial planning and management packages, there still exists one category of programs which has gained in popularity. Educational software has been the beneficiary of parent's growing concerns about their children's ability to keep up with the technology. And computers have been seen as the tool by which this instruction can be possible.

An off-shoot of all the attention and demand in this area has been a noticeable drift to the introduction of simple, easy-to-use peripherals which have freed computer operation away from being keyboard-bound. Light pens, touch tablets and mice have opened new doors to the way we can utilize computers and expand the creative process as a result. In this month's EHC we offer a comprehensive guide to the latest efforts on page 16.

Also in this issue is a special report on the much anticipated and envisioned assault by Japan into the computer sweepstakes. Technical editor, Craig Stark recently traveled to find out the answers and you can read his findings beginning on page 26. In addition, how can you best set up your computer work space? Well, some interesting furniture options are currently available which you'll see on page 30.

The world of telecommunications, linking one computer to another and offering a variety of services to owners in the privacy of their own home, is explored with the initial test results of Viewtron in southern Florida (page 16). And how can you get connected to all the services that have become available? Well, modems are the answer and you'll read about the newest models and features on page 58.

There's all this and much more as Easy Home Computer welcomes in the beginning of the summer. Enjoy!



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WE'D LIKE TO HEAR FROM YOU!

Stop your word processing long enough to fill out this questionnaire. Tell us what you like about the magazine. Then rip it out, (or photocopy it), and send it to us as soon as you can at this address: EASY HOME COMPUTER MAGAZINE, 350 Fifth Ave., Suite 6204, New York, New York 10118.

Name: _____

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Family Income: Under $14,000 _____ $14-21,000 _____ $21-39,999 _____ Over $40,000 _____

Education: Elementary School ____ High School ____ College ____ Master's ____ PhD ____

Occupation (if none, list parents'): _____

Favorite Department in this issue: _____

Favorite Feature article: _____

What I'd like to see less of: _____

What I'd like to read more of: _____

_____

How does this issue of *EASY HOME COMPUTER* compare to previous ones?

The same _____ Even better _____ Best so far _____ Never mind _____

Why? _____

Other than *EASY HOME COMPUTER* which magazines do you read? _____

Hobbies: _____

What home computer system do you own? _____

How long have you owned it? _____

What peripherals do you own? _____

_____

What is your favorite software or game? _____

If you were to get another system, which would it be? _____

How much computer software do you buy each month? _____

Does computer product advertising in *EASY HOME COMPUTER* influence your purchases and selections? _____

What most influences you in buying computer software?

Magazine/newspaper ads _____ Radio _____ TV _____ Word of mouth _____ Other _____

Does reading an article in *EASY HOME COMPUTER* influence your computer software purchases? _____

How did you get this issue? Subscription _____ Newsstand _____

MAIL MERGE

UP AND ADAM

Dear EHC:

Why don't you review the Coleco Adam? I think it's a wonderful machine, and it's about the best *home* computer there is! Or have you got some inside information that they're going to be stopping production in view of the heavy losses they've recently reported?

Roger Savard
Boston, Mass.

Dear Roger:

We have requested a sample of the Adam, and do intend to review it soon. As to your other question, just this morning the company reiterated to us its intention to keep producing and marketing the machine.

Coleco's difficulties seem to be twofold. First, in the hope of catching a lucrative Christmas market, the company announced its machine in June, before it was really ready for market production. This led to both a shortfall in the orders it could fill and to the initial quality control problems that were reported by *Consumer Reports* and others.

The second problem is more general. To put it bluntly, is there really a market for *home* computers? Obviously, we at EHC think there is, and readers like yourself are evidence of it. On the other hand, as our Report from Japan in this issue suggests, many computer manufacturers are not so certain anymore.

There seems, at the moment, to be more of an incentive to produce high-cost, high-profit IBM PC-type computers, (where there is supposedly an assured market,) than to produce less costly home-oriented machines where many companies have experienced difficulties in making a profit. We can only hope that there is enough entrepreneurial spirit to keep the home market not only alive, but in good health.

ONE SHOT

Dear EHC:

I'm interested in purchasing the *Spectravideo Quick Shot* joystick shown on p. 60 of your March issue. Where can I get one, and how much do they cost?

Walter D. Liebkemann
Metairie, La.

Dear Walter:

The Joystick can be purchased for approximately $9 at K-Mart stores. If there's none near you, please write Spectravideo directly, at 39 West 37th St., New York, N.Y. 10018.

TESTING 1, 2, 3, 4

Dear EHC:

I like your magazine a lot, especially the computer reviews, and those technical explanations. I don't like the fiction articles, though. When are you going to review the IBM PCjr? I'd like to read about it.

Mary Block
Fairfield, Conn.

Dear Mary:

We've got a test report in the IBM PCjr. scheduled for our July issue, and we hope you'll like it. If you've been reading us since you wrote, you'll notice that March was the last issue where we ran a fiction piece, which had been selected by our previous Editor.

GIVE ME MORE

Dear EHC:

I just thought I'd write to say how much I enjoyed the articles in the March issue of Easy Home Computer. I'm just learning about computers, and when I've looked at other magazines they seem to assume you already know what all the technical words mean. You tell the new reader what each word means the first time he comes to it so he can understand what he's being told. I'm enclosing a check for a year's subscription.

Gary Rider
Painesville, Ohio

Dear Gary:

You just made our day! You've put the reason for our magazine in a nutshell, and we'll try to keep living up to the standard you described.

KEYING IN

Dear EHC:

In his review of the IBM PC (Feb. issue), Craig Stark mentioned that alternative keyboards could be purchased from a company called Key Tronic. Unfortunately, however, he did not give their address. Can you supply it?

Robert Claymore,
Atlantic City, N.J.

Dear Robert:

You can write to Key Tronic Corp. at P.O. Box 14687, Spokane, Washington 99214, or call them at (509) 928-3851.

UNCOMPATIBLE

Dear EHC:

I own a Commodore 64 computer and would like to connect it to an Atari 1025 printer. Can this be done, and if so, how?

Sam Lewis
Van Nuys, Calif.

Dear Sam:

The Atari 1025 dot-matrix printer is manufactured for that company by Okidata, which has equipped it with a special interface to match the needs of the Atari computer line. Unfortunately, without considerable technical expertise there is no way you can bypass this interface. Sorry!

CODE BREAKER

Codes and commands can be pretty mysterious fare if you haven't a clue as to how they're used. Now Howard W. Sams & Co., Inc. (of 4300 W. 62nd St. Indianapolis, IN 46268, Tel. 317-298-5400) solves many of these mysteries in the **VIC 20 Programmer's Notebook** by Earl Savage.

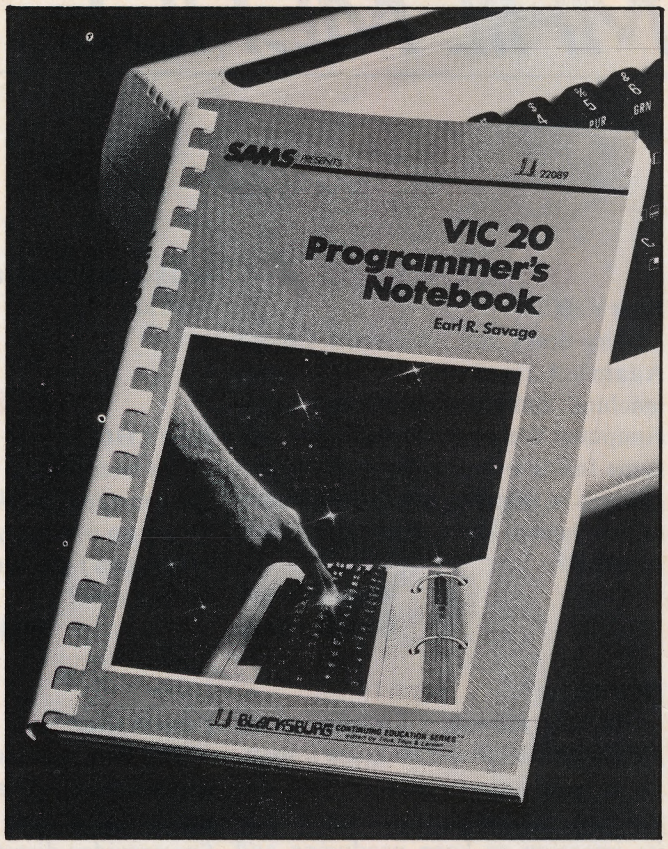
The Notebook describes dozens of operations including how to add memory, deal with data, troubleshoot, and even how to combine graphics with color and sound. Each subroutine, tip and idea is designed to save time and make programming more enjoyable, especially for the computer novice.

All program statements are written in VIC 20 language and most statements can be taken directly from The Notebook and used immediately.

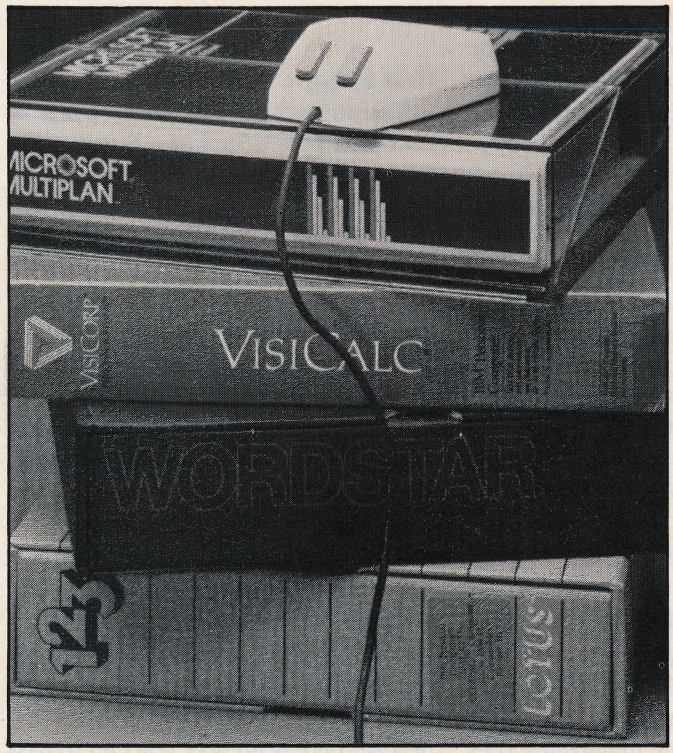
The Notebook also explains the whys and wherefores of various operations, with flowcharts including those from standard usage and variations.

On the fun side, The Notebook covers the use of joysticks, light pens, paddles, and more. The book retails for about $15 and can be obtained from dealers and bookstores.

—Andrea Gill



MOUSESPEAK



If you own a Microsoft Mouse, chances are that you can only use it with a limited selection of your software. To remedy this situation, Microsoft has introduced the **Microsoft Mouse Menu**. The Menu's utility program can be used to initiate commands formerly entered via the keyboard.

Prewritten mouse menus are available for Microsoft's Multiplan (both the MS DOS and IBM versions), Lotus 1-2-3, WordStar, and VisiCalc applications programs.

To individualize the mouse menu for a specific application, users simply type in "Menu *filename*" (e.g. MPIBM, as the filename for Multiplay) prior to running the program. The mouse menu will in no way alter the way an application program runs; it only changes the way a user interacts with the program.

Microsoft also has a mouse programming language allowing users to create custom menus for other, non-mouse-based programs.

The Microsoft Mouse retails for $195 and comes packaged with the new Menu Software. Demonstrations of the system are available from authorized dealers. People who already own a Microsoft Mouse can order Menu updates for $25 by calling Microsoft Customer Service at: (206) 828-8088.

—Andrea Gill

EDEN EXPANDS

And then there was···

Adam—but Adam had some problems. Coleco, not one to leave its creation out in the cold world unprotected, has made two heart warming announcements recently.

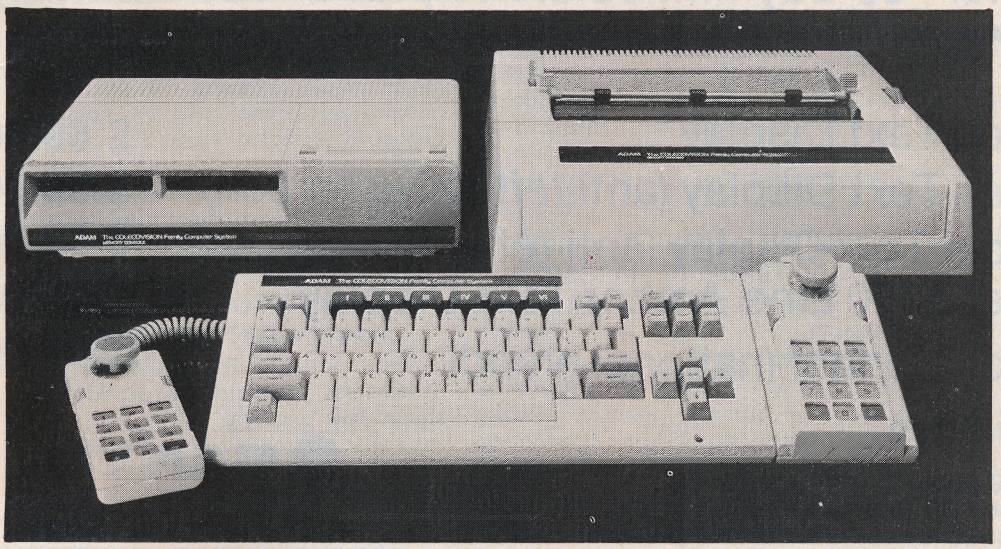
The first is that in connection with Honeywell Information Systems, they have started a network of 35 **Adam service centers** nationwide, with more scheduled to open during the rest of 1984. This should make a lot of people more comfortable about buying the famous package since it will not have to be sent back to Connecticut if something goes wrong.

The second flash comes from Coleco in conjuction with Digital Research—Adam is to have its own version of the popular **Personal CP/M** from D.R. The Personal CP/M for the Adam utilizes Smart Keys, messages and other visual aids that allow the user easy control of the functions of the operating system.

Personal CP/M also has the ability to "trap" errors, which reduces the debugging necessary when you are completing a software program.

For more information contact Coleco Industries, Customer Service, 999 Quaker Lane, S. W., Hartford, Ct 06110. Customer Service Telephone: 800-842-1225.

—Laurie Ziesk



A NEW DAISY

Panasonic is moving into the computer peripheral market with a vengeance. They offer a complete line of monitors and printers compatible with most computers.

The Flagship of their line is the letter-quality daisywheel printer, which they imaginatively call the **KX-P3151**.

This printer uses a Diablo-compatible 96 character daisy wheel print element. It prints at 22 characters per second, which is faster than competitors in its price range.

It also seems packed with more features, including selectable pitch (10, 12, 15 characters per inch, plus proportional print), justified/non-justified print, bold and shadow lettering, and an extra wide carriage which lets you print on paper up to 15.5″ wide.

This unusual letter-quality printer from Panasonic carries a suggested price of about $700. Watch out, Brother (and Smith Corona).

—M.B.

A RESTING ENTRY

Ever feel like you've been arm wrestling with your Apple computer? Spending hours at your terminal can sap your strength, but now you can ease "computer fatigue" with Discwasher's **Entry Rest**.

Designed for use with the Apple II series computers, Entry Rest provides support to arms, wrists, and shoulders, allowing you to work longer without tiring. The solid oak bar which can be mounted to your Apple retails for about $35 from Discwasher, (1407 N. Providence Road, P.O. Box 6021, Columbia, MO 65205) and retail outlets. Both a static grounding bar and a built-in, multi-function calculator with memory are included.

—Andrea Gill

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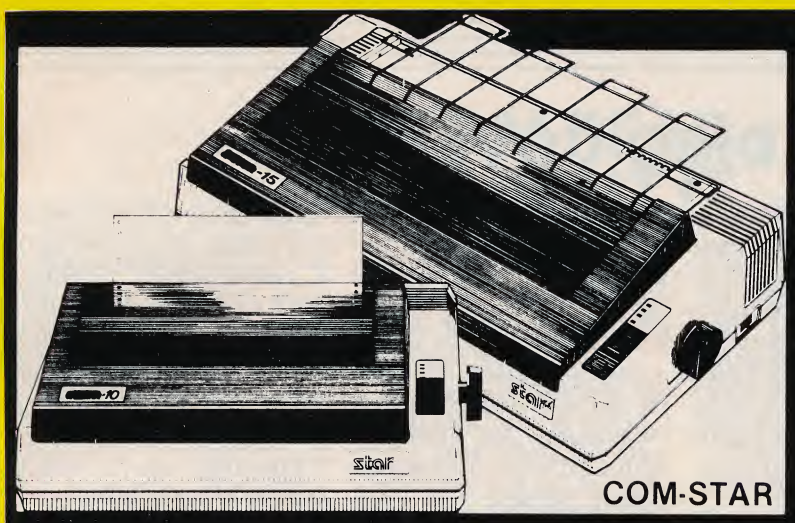

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**DELUXE COMSTAR T/F 80 CPS PRINTER—$199.00

The COMSTAR T/F (Tractor Friction) PRINTER is exceptionally versatile. It prints 8½" x 11" standard size single sheet stationary or continuous feed computer paper. Bi-directional, impact dot matrix, 80 CPS, 224 characters. (Centronics Parallel Interface).

Premium Quality—120 CPS COMSTAR T/F SUPER-10X PRINTER—$289.00

COMSTAR T/F (Tractor Friction) SUPER-10X PRINTER gives you all the features of the COMSTAR T/F PRINTER plus a 10" carriage, 120 CPS, 9 x 9 dot matrix with double strike capability for 18 x 18 dot matrix (near letter quality), high resolution bit image (120 x 144 dot matrix), underlining, back spacing, left and right margin settings, true lower decenders with super and subscripts, prints standard, italic, block graphics and special characters, plus 2K of user definable characters! The COMSTAR T/F SUPER-10X PRINTER was Rated No. 1 by "Popular Science Magazine." It gives you print quality and features found on printers costing twice as much!! (Centronics Parallel Interface) (Better than Epson FX 80).

Premium Quality—120 CPS COMSTAR T/F SUPER-15½" PRINTER—$379.00

COMSTAR T/F SUPER 15½" PRINTER has all the features of the COMSTAR T/F SUPER-10X PRINTER plus a 15½" carriage and more powerful electronics components to handle large ledger business forms! (Better than Epson FX 100).

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NOTE: Other printer interfaces are available at computer stores!

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BRIGHT DISC-COVER-Y

In the days of the Model-T Ford, the story goes, you could get a car in any color you wanted. . . as long as it was black. In the area of floppy disks, we've been living in a similarly drab period.

A company called Memron, Inc. (1756 Junction Ave., San Jose, CA 95112. Telephone 408-275-0780, 800-841-1800; in California, 800-841-1414.) is trying to change all that. Memron now makes two different categories of floppy disks—both of them in colorful clothing.

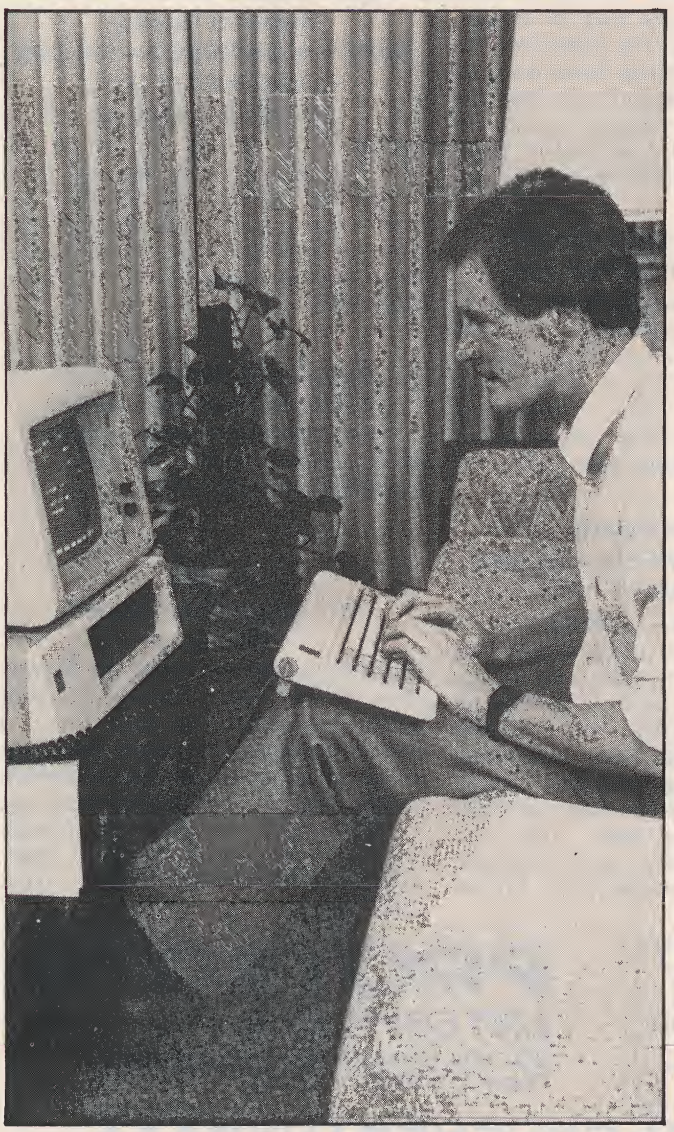
The first category is their MEMO line of floppies, which you will soon be able to buy at your nearby computer store. These will be packaged as five-or-ten-packs, in clear plastic boxes and clear plastic sleeves, to show off their colorful jackets.

The second category of production is specialty jackets. For example, Apple computer wanted a few thousand with the famous Apple logo printed on them for in house use at their plant. One look at the disk and you know immediately where it came from, what it is, and where it belongs. The jackets are also being specially made for software manufacturers (Waveform, for example), with a different, representational picture for each specific program.

There are several advantages to these new jackets. First, you will probably begin to see clear packaging instead of the usual cardboard boxes. Second, your software will be easy to find, since it will have a unique cover. Finally, you'll know immediately that you have an original, because anything else would have the wrong disk jacket, (pirates beware).

This may open a whole new era of top 40 software—who knows, maybe you'll start buying programs for the cover art. (Hmm, I wonder how a "Thriller" diskette would do?")

—Mark Brownstein



LEARNING ON A TEN-INCH TUBE

Here's the situation: you've twisted your ankle on a carelessly discarded twinkie, and you can't get out of the house to get to school. You've got it made, right? Study when you feel like it and fool around when you don't.

WRONG. If you have an IBM, Apple, Radio Shack, Commodore or Timex computer, and appropriate communications equipment, you may be taking your lessons over your computer.

National Education Corporation has a nationwide EdNET computer system which hooks your home computer into its central bank of lessons. In addition, a real, live teacher is usually on-hand to help guide you through difficult lessons. Aside from education for shut-ins, the system also provides language training, industrial training where you work, and computer-assisted courses on small business management, computer-aided bookkeeping, and even computer operations.

National Education Corporation can be reached at 4361 Birch Street, Newport Beach, CA (714) 546-7360.

—M.B.

EXTRA! READ ALL ABOUT IT

Magazines on disk are not new—even monthly magazines. But a monthly magazine on disk that is exclusively for the IBM PC is new.

The monthly is called I.B. Magazette (available from I.B. Magazette, 1306 Petroleum Tower, Shreveport, LA 71101, Tel. 318-222-8088), and it costs $14.95 a month—a little less if you get a subscription.

The disk offers tutorials, games, demos, utilities, hints and much more.

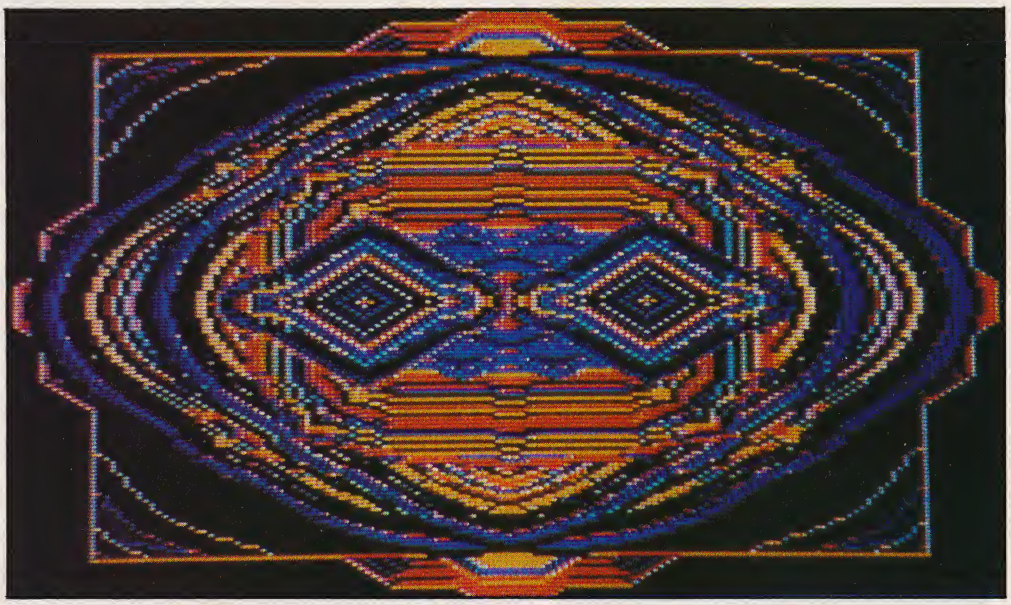
To use the magazette you load BASICA from DOS 1.1 or 2.0 then insert the magazette into your PC and type RUN "A:START" and you're ready to go. In addition to all the training sequences you do get full programs, for example in Vol. 3.1-1984 you are provided with "1-RINGY-DINGY" a complete communications program that can be used with most modems.

The Magazette needs an IBM PC with 64K and one drive or an IBM XT in order to run—but the novelty should be renewed month after month. —*L.Z.*

SIGH OF RELIEF

In the past, it was likely that you would come home from a hard day at work and request a good, stiff drink. Now, with people more health conscious, they are trying to find other ways to unwind after a tough day.

One of these new, non-alcoholic, (though possibly addictive) methods is a new peripheral with software from Synapse appropriately called *Relax*.



Relax lets you *watch* your stress on your computer monitor and teaches you to control your muscle tension by controlling the graphics you see.

What you get:

Relax comes with a disk or cassette (either for Atari or Commodore 64, and disk only for Apple II, II+, //e and IBM PC and PCjr); a headband with sensors; an audio cassette that will guide you through deep relaxation exercices and several tension relaxation games; and a control unit that allows you to set your own pace.

Also included is a workbook which not only provides full documentation but enables you to create your own stress profile and design your own program to deal with it. There are a number of different screens to Relax. One lets you watch a moving graph of your muscle tension —others are games. But the one I like best was a screen with graphics that look like the pictures you get when you hold one of those old kaleidoscopes up to the light.

The moving graphic collages respond to your stress. A cleaner, less cluttered picture will develop as you control your tension. If you are highly stressed, the geometric design will grow, like a mutant germ in a petri dish, spreading out, and eventually overlapping itself.

These geometric graphics are truly beautiful as well as being soothing to the eye.

The whole package is expected to retail for about $100, and will be available at computer stores. For more information contact Synapse at: 5221 Central Avenue, Richmond, CA 94804. (Telephone: 415-527-7751.)

Keep your eyes on EHC for a full review, soon.–*L.Z.*

The New Connection

South Florida tunes into Viewtron

By JONATHON SACKS

Today, in several South Florida cities, thousands of subscribers to a service called Viewtron can read their daily newspapers on their television screens.

Using a small keyboard device supplied by AT&T, these people can get up-to-the-minute weather, stock and sports information. They can do their banking and some shopping right from their homes.

That's not all. At the touch of a button, they can read the menus of more than 300 area restaurants. If they like a particular menu, they can push a couple of more buttons and read a review of the restaurant.

There are many other services available from Viewtron. You can ask questions from any of 12 experts and receive a response to your query 24 hours later. The categories include: nutrition, "Ask Your Vet," plant care, fashion and beauty, religion, and household tips, among others. Starting in June Viewtron expects to be adding a tax expert and a sports expert to their listing.

For children and teenagers there are educational programs. SAT preparation includes the complete Arco SAT prep workbook. You can take Spanish language lessons or play one of their educational games. Viewtron has eschewed the standard arcade games for games with a more literary bent such as their version of the old word game "hangman" which they call "Star Word."

On-line is the Commodity New Service's 15 minute delayed stock quotes, expanded and current sports news—that is, you can get updates on, say, a college basketball game *while* it is being played and soon after get a full report, the ability to send electronic mail to anyone else on the system, search through several encyclopedias and peruse the Wall Street Journal.

Although there are numerous newspapers and wire services available, they only go back a day or two. With Viewtron you must specify where you are looking and precisely for what. According to Mary Bulterman of Viewtron, a printer should be an option in about six months—though at the moment you can't store anything you call up, except with your own pen and paper.

Other Viewtron services include classified advertisements, reference guides, and travel tips.

Amazing?

VIEWTRON
1 TOPIC INDEX
2 KEYWORD INDEX
3 HOW TO USE
4 THE LATEST
KEEP INFORMED WITH UP-TO-THE-MINUTE NEWS FROM AROUND THE WORLD
5 BEST BET
OUR GUIDE TO FLORIDA'S TOP BEACHES CAN HELP YOU BEAT THE HEAT.
6 CALENDAR
7 MAIL
TYPE NUMBER AND PRESS SEND

In a 23-page magazine distributed to advertise and market Viewtron, company president Albert J. Gillen had this to say:

"Welcome to the future. Tomorrow has arrived. A historic moment in the United States is upon us, and all of us who live in South Florida are part of this historic event."

Gillen went on to call Viewtron "a new communications medium" making its commercial debut in Florida.

In the narrowest sense the above is true. Viewtron is the first Videotex service available in the country. Videotex is a two-way television communications medium that uses telephone or cable television wires to exchange information between a main computer and the subscriber's home.

And, when Knight Ridder Corporation began research and development on Viewtron some seven years ago, such videotex services were mostly the stuff of futurists' dreams.

WAY BACK WHEN

The first videotex service—known as Prestel—began in 1979 with the support of the British Post Office. France then developed a videotex system called Antiope, which was planned as a way to reduce the cost of printing telephone directories.

In 1982, France initiated a 10-year program that will equip all telephone subscribers in a Paris suburb to a terminal that will provide telephone numbers, thereby doing away with paper directories and the problems of reprinting for updates.

Canada, too, has become involved in videotex, with a system called Telidon. That specialized service—with greater graphics capabilities than any previous videotex system—has initially been used to transmit weather and crop information.

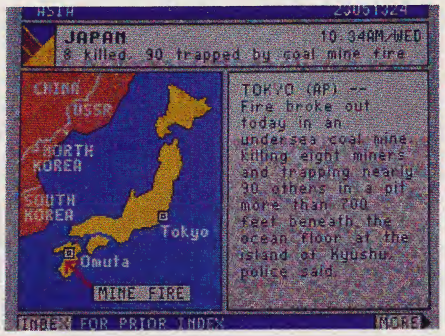
Viewtron set out to become the first videotex service to provide a vast array of general information to anyone who wanted to subscribe.

The problem is that, within the next several years, electronic communications went through massive changes. While Viewtron developers were struggling with the logistics of hooking television sets to a mainframe computer by telephone line, personal computers gained widespread acceptance. And with the personal computer came the modem, and then the database: telecomputing became, for many, a way of life.

STARTING OUT

So when Viewtron actually made its debut in late 1983, after Knight Ridder had spent some $30 million on the pro-

ject, there were plenty of naysayers who wondered what all the excitement was about. After all, the service offered less than databanks like The Source and CompuServe. The $900 AT&T Sceptre terminal, needed to access Viewtron was simply a "dumb" keyboard/modem combination—dumb means that the terminal is useless when it isn't connected to a mainframe. Even at the $600 sale price, (which, by the way, remains in effect) the Sceptre keyboard was more expensive than many small computer/modem connections. And, perhaps most disturbingly to many analysts, Viewtron wasn't even capable of hooking into home computers.


JAPAN
10:34AM/WED
8 killed, 90 trapped by coal mine fire
CHINA
USSR
NORTH KOREA
SOUTH KOREA
Tokyo
Omuta
MINE FIRE
TOKYO (AP) -- Fire broke out today in an undersea coal mine, killing eight miners and trapping nearly 90 others in a pit more than 700 feet beneath the ocean floor at the island of Kyushu, police said.
INDEX FOR PRIOR INDEX
MORE

Viewtron officials discounted the criticism as so much sour grapes. Since Viewtron's debut, they have launched a massive marketing effort that includes daily newspaper advertisements, special advertising sections and promotions in local department stores. Viewtron is for sale in major shopping malls, and the Sceptre unit can be purchased both at department stores, and at ComputerLand and AT&T phone centers.

And, apparently, people are buying the service.

"We are not, for competitive reasons, prepared to reveal how many subscribers we have," said Mary Bulterman, a Viewtron spokesman. "But yes, we have subscribers."

When considering why people would spend $600 for a Sceptre terminal, then pay the $12 monthly Viewtron service charge, and the $1 an hour charged by the phone company to hook into the service, it is important to realize that as popular as home computers are, most people don't own one.

When asked why someone should choose Viewtron over one of the many databases Ms. Bulterman said that:

"Most people have no use for a personal computer. How many people do you now who have them stored in a closet? People don't have the time, or want to develop the expertise needed to run the computers.

"When you bring Viewtron home; in 15 minutes it's hooked-up and you have all this information at your fingertips immediately."

Also, anyone who belongs to CompuServe or the Source quickly learns that $12 a month and $1 an hour would be a great bargain. Both those services cost a great deal more.

Viewtron, the company says, has other benefits over the computer databanks. It doesn't require the purchase of additional software, or require any computer expertise.

SPECIALIZED LOCAL SERVICES

The stories Florida Viewtron subscribers read are taken from the Miami Herald, and are often available on Viewtron before they come out in the next morning's newspaper.

When a Viewtron subscriber asks for the news section of Viewtron, he is presented with a menu asking him to choose which type of news he would like to read. He goes deeper and deeper into the menu structure by making choices, such as local news, national news or the day's top stories.

Under the heading of local news, someone living in one of the many small suburban towns around Miami can choose to read stories about what happened at his town's city hall.

And, when a Viewtron subscriber uses the shopping or banking services, he is shopping at local stores and banking at local banks. (Currently, only one bank is hooked into Viewtron, but company officials say there will be at least a dozen banks online by year's end.)

One immediately noticeable aspect of Viewtron, especially as opposed to computer data banks, is the quality of the graphics. Because Viewtron was designed to hook into color televisions, it offers the kind of graphics one might expect from a Commodore 64. Plenty of color. Plenty of style. In fact, there are people hired by the company that do nothing but work on making Viewtron graphically pleasing.

LOOKING TOWARDS THE FUTURE

What remains to be seen, of course, is whether all the effort put into Viewtron will pay off in the end. Much like newspapers and magazines—and unlike databanks—the deciding factor to success will not be based solely on the number of people who subscribe to the service.

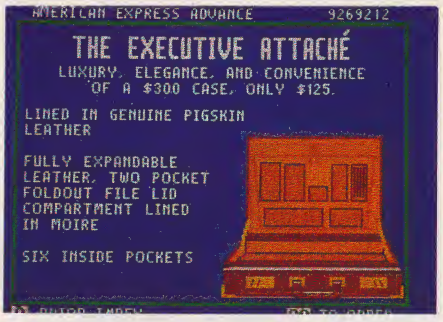
Rather, success or failure will be decided by the number of advertisers. Of course, advertisers come and go depending upon the quality and quantity of the people reading their ads. But even if Viewtron draws a wide audience, it must also draw advertisers or it will die.

Despite some initial skepticism, Viewtron is gaining support. And other companies—most notably the Los Angeles Times-Mirror corporation, and a cooperative venture by IBM, CBS and Sears—plan to offer videotex services of their own.

The IBM-CBS-Sears group has already announced that its service, still several years from start-up, will be different from Viewtron in that it will be accessible by home computer.

Meanwhile, Viewtron officials have announced that third-party contractors have started working on ways to make Viewtron transmit to computers, too. And, in the future, Knight-Ridder plans to take Viewtron into an estimated 35 additional metropolitan markets nationwide.

All this means fine things for both owners of home computers and for the home computer industry at large, some industry analysts predict. Viewtron will introduce the idea of telecomputing to a vast audience. And, as competition increases, the quality of service will get better and better and price—simply through supply and demand—will probably drop.


AMERICAN EXPRESS ADVANCE
9269212
THE EXECUTIVE ATTACHÉ
LUXURY, ELEGANCE, AND CONVENIENCE OF A $300 CASE, ONLY $125.
LINED IN GENUINE PIGSKIN LEATHER
FULLY EXPANDABLE LEATHER, TWO POCKET FOLDOUT FILE LID COMPARTMENT LINED IN MOIRE
SIX INSIDE POCKETS

So, in the broadest view, videotex may not be the dawn of a new era. But it is certainly the mid-morning of a new, and ever-brightening day, a day already upon us that promises more and better information at everyman's command. ●

CREATIVE EFFORTS

Pads, Pens, and Mice: Alternative Input Devices

By JERRY WILLIS

In the good old days of personal computing (the early seventies) a typewriter keyboard was a luxury many computer owners could not afford. At that time a good keyboard cost several hundred dollars, and that meant many pioneering hackers had to input data via devices called *front panels*.

Front panels had rows and rows of little lever switches. To input a letter or number you had to throw at least nine switches, a requirement that put a crimp on touch typists who were used to speeds in a 60 words-per-minute range. I was happy when I could average 4 words a minute on my front panel!

Times certainly have changed, for today even inexpensive computers, like the VIC-20, have nice, typewriter-style keyboards. A touch typist accustomed to writing letters on an electric typewriter can easily shift over to a computer with only a few adjustments. Computer keyboards have a few more keys, but the basic layout and mode of operation is the same as a typewriter.

A computer owner who uses a home computer for routine tasks such as word processing may be completely satisfied with the keyboard that comes with the computer. Old timers who spent hundreds of hours flipping switches on front panels may even think of keyboards as the height of luxury. There are, however, other ways of getting data into your computer.

WHAT IS AN INPUT DEVICE?

Keyboards are fine for inputting text. And if your machine's keyboard has a numeric keypad laid out like an adding machine keyboard, it is also probably the best means of entering lots of numbers. But inputting nothing more than standard text and numbers may make Jack and Jane Byte dull people. There are many other types of data to be input to today's personal computers.

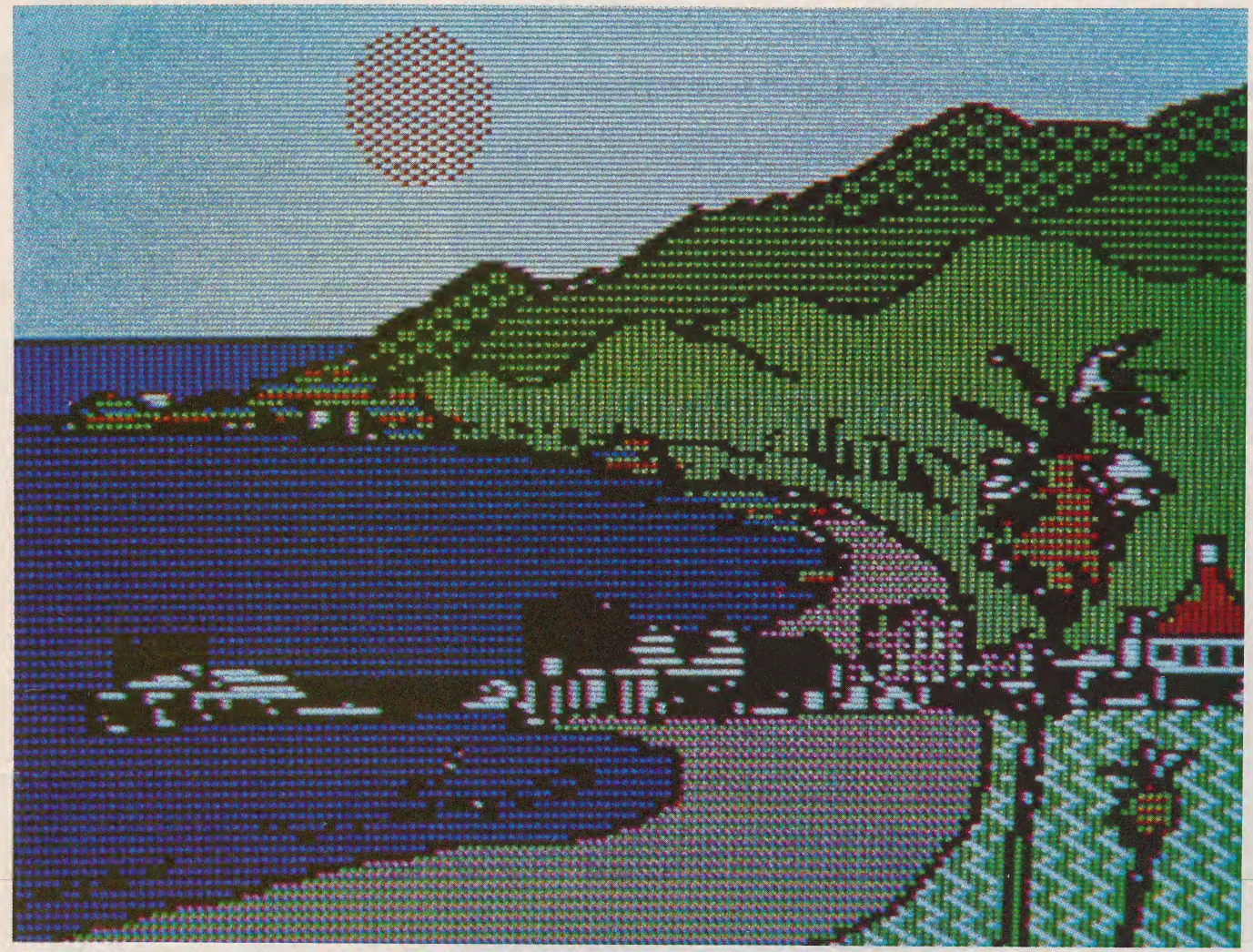
For example, when you must maneuver your nuclear powered spacefighter through a dangerous asteroid belt in search of evil space-nasties, a keyboard is generally not a good input device. For that you need a joystick or game paddle. And if it's your turn at bat in a computerized version of the World Series, trying to hit a high inside fast ball by pressing the B and T keys just doesn't make it. Again, you need a joystick or game controller.

Ten years ago, you were thankful if your computer came with a keyboard, even a bad keyboard. Five years ago buyers had come to expect a decent keyboard, but many gave no thought at all to whether the computer system had any other input options. Today, buyers may ask a lot of questions about their input options. And in many cases the salesperson can answer those questions positively. For instance, the much maligned Coleco Adam comes standard with an outstanding keyboard. It may take you a few days just to figure out what all those extra keys do. Coleco even added a row of keys they call SMARTKEYS that perform special functions which depend on the program you're using. If you want a printed copy of the material on the screen, some Adam programs let you press one of the SMARTKEYS and watch the printer recreate the screen text on paper.

Adam's keyboard is just the beginning, however. You also get two Coleco game controllers. These neat devices are the same ones that come with the ColecoVision video game. They have a stubby little joystick on one end, a numeric keypad on the other end, and two fire buttons on the side. And if these aren't enough input options for you, the Adam also accepts input from Coleco's steering wheel input device. Plug it in and insert the car race game cartridge that comes with it, and you're in control of a racing car that you drive with the steering wheel. The device even has a gas pedal that sits on the floor and lets you control acceleration, just as you would in a real car. That's a far cry from flipping nine switches just to input an "A."

EHC has published several articles on joysticks and other devices created specifically for computer games. This article concentrates on other types of input devices—graphics pads, light pens, and the infamous mouse. None of these input devices are absolutely necessary if all you want to do is type in text or a BASIC program. If, on the other hand, you have some special uses in mind, then one of these input devices may be of use to you.

Each of the above has its own areas of special use. The graphics pad, for example, is an excellent means of creating graphics on your computer's screen. Many light pens are also useful for drawing graphics, but pens are also frequently used in educational applications where multiple choice questions are printed on the screen. If you think answer B is the right one, just touch the B on the screen with a tip of the light pen,



and the computer will accept B as your answer.

One of the newest input devices on the block is the computer mouse. The computer mouse comes in several different styles, but all of them operate on the same basic principle. Computers with ordinary keyboards generally have two to five cursor control keys. Press the key with an arrow pointing to the right on it, and the cursor (that little blinking dot of light on the screen) moves to the right.

If you have a mouse, move it to the right on your desk and the cursor on the screen moves to the right on the screen. The further you move the mouse, the further the cursor moves on the screen. When running programs like electronic spreadsheets, such as *VisiCalc* and word processors like *Spellbinder* or *WordStar*, moving the cursor is a frequent activity that lets you control tasks such as editing a document. Some people find using a mouse instead of cursor control keys speeds up their work by as much as 50%.

PROS AND CONS

As I see it, there is one major, though surmountable, drawback to virtually all the alternative input devices available today. That drawback is the fact that these devices cannot be routinely used with most of the software currently available.

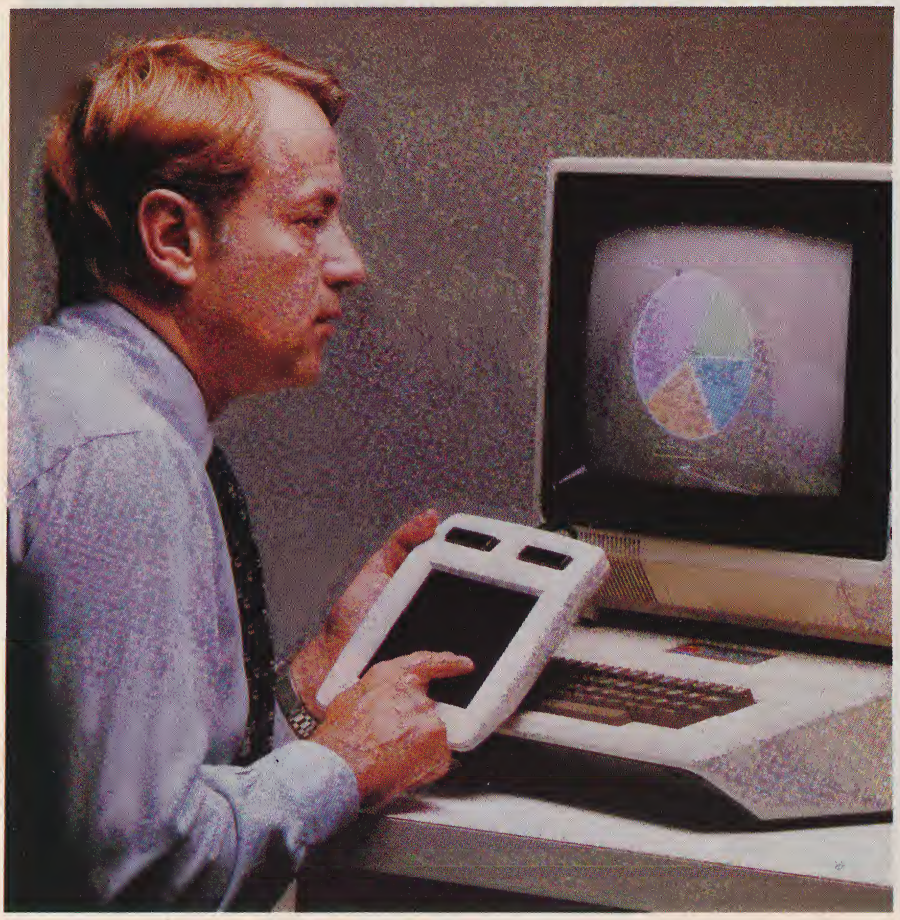
No one would consider writing a word processing program for the IBM PC that doesn't make use of the keyboard that comes with the PC. But hundreds of word processing programs are available for the IBM PC that make no provisions for using a mouse to control cursor movement.

Similarly, there are many programs that let you create graphics on your Commodore 64 using the keyboard and the joysticks, but few graphics programs let you use graphics tablets like Chalk Board's *PowerPad*. This problem generally applies to older computers, like the Apple IIe, the Atari models, and the Commodore Vic-20 and 64. Newer models, like Apple's Lisa and Macintosh, come with a mouse as standard equipment. Most of the programs Apple sells for these models expect you to make extensive use of the mouse, and a large percentage of the Lisa and Macintosh software developed by third party suppliers is also mouse-compatible.

BEFORE YOU BUY

When you're shopping for a pad, pen, or a mouse for an existing model that doesn't ordinarily have one, the selection process becomes complicated. You may find a great piece of hardware that interfaces beautifully with your computer, but if there isn't any software for it, you may end up with an elegant paperweight.

Several years ago I spent $40 on a neat looking light pen that worked with my



old Sol-20 computer. The ad said it came with software so you could use the pen with hundreds of programs. With that assurance I felt safe in ordering it. The pen arrived about three months later and consisted of the shell of a ball point pen with some microelectronics crammed in.

The light pen probably worked, but I never actually wired it into my computer and tried it out. That was because all that "software" the ads mentioned was really nothing more than a generic input routine written in 8080 machine language, a most difficult and cantankerous computer language. The light pen could, at least theoretically, be used with all sorts of programs. In order to use the pen, however, you had to go into each program and rewrite it so input from the light pen could be accepted. At the time I barely knew how to write programs in BASIC, and rewriting machine language programs was well beyond me.

The manual accompanying the pen contained lots of verbiage about all the *patches* the company would make available so you could add light pen input instructions to popular programs simply by typing in a patch program and running it on your computer. Promises in ads are a lot more complicated than programs you can use, and I was never able to buy a single patch program from the company.

My $40 light pen is safely stored on the top shelf of some closet today. The experience taught me a lesson, though. When you're buying alternative input devices, pay as much attention to the software available for it as you do the hardware. *Hardware without software leads to days without computing.*

In the final sections of this article I'll review some of the more popular products, like graphics pads and light pens, and I'll try to give you some details about the software available for each product.

PRETTY AS A PICTURE

When I was in elementary school a little pad called a Magic Slate was very popular. It cost less than $1 and consisted of a drawing surface a little smaller than an ordinary piece of notebook paper. It came with a blunt wooden stylus about the size of a pencil. The drawing surface of the Magic Slate was a thin piece of grey plastic, and when you drew on that surface with the stylus, it caused the grey plastic sheet to stick to a material underneath. If you drew a circle, it showed up as a dark grey shape on a light grey background.

There were two nice things about the Magic Slate. First, it was cheap. Second, it was reusable. When you tired of the designs you had created, all you had to do was pull the grey sheet off its backing and everything was erased. Then you were ready to begin again. Even with those positive features there were some drawbacks to the Magic Slate. Beginning a new drawing meant you had to erase the old one. Of course, if you created anything you wanted to keep, some joker in the fifth grade would come by and erase it just for fun.

Graphics pads for computers are sophisticated versions of the old Magic Slate. You can draw on the pads with a stylus or your finger and the pattern you draw shows up on the screen of your computer. Graphics pads aren't cheap, but they offer several advantages over the Magic Slate. Most of them let you save your creations on disk or cassette so you can erase them from the screen and still have an electronic copy to re-use later. Most also give you more options than dark grey images on a light grey background. Multicolor graphics are easy to produce with these pads.

If you're as inept as I am at freehand drawing, there is another advantage to computer graphics pads. (Give me the same paints, brushes, and canvas that Leonardo used to create the Mona Lisa and all you'll get are stick figures; my cup of artistic talent is definitely not full.) You can use the graphics pads to create freehand drawings, but that's not the only way they can be used. Many let you push a button and produce a perfect circle, square, or box in any size and at any location on the screen. Some even let

you select various backgrounds to display on the screen and provide stock figures in an electronic library of images that can be placed in those backgrounds. You can *compose* a picture rather than draw one.

That last feature lets kids and adults with limited artistic talent, and young childen who don't have well developed fine motor skills, experiment with color graphics without becoming frustrated when they can't transform the images in their heads into pictures on the screen.

With that introduction to graphics pads, let's take a look at some of the more popular models.

THE KOALA PAD

The KoalaPad comes as close as anything to being a computerized version of the Magic Slate we used in elementary school. It's that, but it's much more too. This neat device is just a little larger than a sheet of letterhead paper. It's thicker of course, but the Koala Pad is still compact enough to be held in your hand. The writing surface of the pad is fairly small, just over four inches top to bottom and side to side. The case adds a few inches to the size of the pad, and there are two well placed buttons at the top that let you issue commands that control operation.

The KoalaPad comes in versions for most of the popular home computers. If you have a Commodore Vic-20 or 64, an Apple IIe, an IBM PC or PCjr, or an Atari, there is a version for your machine. Mine works on an Atari 800. It plugs into the number 1 joystick connector on the front of the machine and I understand versions for most of the other computers also use the joystick connector. That makes installing it easy. Take it out of the box and plug it in. In fact, it will take you longer to read the instructions on plugging it in than it will to do the job. You can actually use the pad in place of a joystick since pressing on the drawing surface or pushing the buttons makes the computer think it's getting input from a joystick.

The pad isn't cheap at $125, but it may well be worth the price. The product was created by Dr. David Thornberg, a well known computer enthusiast who has written several books and has a regular magazine column on computers and graphics.

Micro Illustrator

You get one piece of software with the pad, called *Micro Illustrator*. The program was written by another old hand in the computer field, Steve Dompiere. When you plug the pad in and load up this program, a menu appears on the screen that lets you decide just how you want to use it.

I started out trying to use the manual to guide me, but quickly found that the manual, though comprehensive, is flawed when it comes to getting you started. It appears to have been written by someone who knows the pad very well. Because of that it sometimes assumes you know things about the program you don't. Fortunately, the program is very easy to use. Kids will probably have less difficulty than I did. And

there is a HELP command in the program that gives you a one-screen summary of how some parts of the program work.

Spider Eater

This is an educational game that helps children learn two things—the standard notation for musical notes and the names of notes they hear.

Playing *Spider Eater* means you must protect the treble clef from the invasion of spiders. The screen displays a standard musical staff on the screen and, when play begins, spiders crawl across the bottom of the screen, up the staff, and into their web. The game comes with a plastic overlay for the KoalaPad that has part of a piano keyboard printed on it. As the spider moves over the musical staff you can zap it by pressing the key on the KoalaPad overlay that corresponds to the note displayed on the screen. For example, if the note shown on the screen is a C and you press C on the keyboard, the spider is zapped. If you miss, it reaches its web safely. *Spider Eater* lets you select the speed of play and whether the notes are displayed. If you elect to play the game without visual aids, you must identify the note to press by the sound you hear. The more spiders you zap, the higher your score. The game can accommodate one or two players.

Spider Eater isn't perfect, but most kids will find learning note recognition a lot more fun with this game than by traditional methods. I should also mention that the program has a mode that lets children play tunes by pressing the piano-style keyboard on the KoalaPad. It's a limited music generation program, but as an added feature it's nice. Koala plans to offer a whole series of educational programs that use the KoalaPad.

Coloring Series I and Coloring Series II

These two packages use the same format. They are both supplemental products for *Micro Illustrator*. *Coloring Series I* consists of a disk with 25 geometric designs stored on it. You can load any of these designs into your computer after running *Micro Illustrator*. There are many different styles of designs in this series, all colorful and interesting.

The disk is accompanied by a thick book that contains several black and white prints of each design. Children can color the designs in the book and then use *Micro Illustrator* to change the colors used on the video version as well. *Coloring Series I* is a similar product with a different set of designs. There are 28 colorful snowflake and kaleidoscope style designs.

Instant Programmer's Guide

Most people will want to use the KoalaPad with applications programs like the ones discussed above. If you also want to write your own programs in BASIC or assembly language, the *In-*

stant Programmer's Guide will interest you. This manual gives some of the nitty gritty details needed to write programs that use data from the pad. Several programs, such as a Tic Tac Toe game, demonstrate how the KoalaPad can be used as an input device, and are provided on disk.

Koala says it plans to bring out many programs that use the KoalaPad in 1984. Many will be learning software or graphics aids, but some will be oriented toward the business computer user. A patch program for a word processing program like *WordStar,* for example, might let you use the KoalaPad as a sort of super cursor control so that movement of of the editing cursor would be controlled by the KoalaPad. In addition, the patch program would include a plastic overlay template that fits on the pad.

Many of the functions of the program, like deleting or inserting text, could be executed by pressing the proper location on the pad. A similar patch program and special template is planned for Lotus' business program *1-2-3.* That may be an excellent use for this product, but I'll wait to get enthusiastic until I can see exactly how it works.

In summary, I think the KoalaPad is an excellent product. It is sturdy, easy to use, and it lets people enjoy creating colorful computer graphics. I recommend it.

(For more detailed information on the KoalaPad itself, see "The Bare Facts" in May's EHC.)

CHALK BOARD'S POWER PAD

The first time I took a close look at the Power Pad was last January at the Consumer Electronics Show in Las Vegas. Chalk Board had a big booth there and I wandered in one day after walking up and down the more than five miles of aisles at the show. By that time I was ceratinly feeling jaded and in no mood for another hard sell from someone who knew very little about the product they were hawking.

The Chalk Board employee who offered to put the Power Pad through its paces was well informed about her product and the computers it ran on. I stood on tired feet for thirty more minutes to watch it work.

The Power Pad is probably KoalaPad's strongest competitor. It retails for $99 (but there's a catch), and it is a lot larger than the KoalaPad. The drawing surface is a 12" by 12" square, and when you add the plastic housing it comes in, the Power Pad is 17" by 20", and about an inch and a half thick. It's too big to sit comfortably on your lap, so plan on putting it on a table or desk for most uses. The Power Pad is housed in a sturdy plastic case that has a convenient handle built into one side. That's a thoughtful design feature that could be incorporated into many computer accessories, but generally isn't.

You connect the pad to the computer via a telephone-style cord, but the instructions sternly warn that using anything but the cable provided by Chalk Board could damage the pad. I resisted the urge and didn't test that warning, although I would have liked to try one of my coiled telephone cords with the pad.

The Power Pad's drawing surface is made of a cushiony plastic. When you draw on it with a stylus or your finger the pad senses where pressure is applied and transmits the data produced by the pressure to the computer. The tan plastic surface seems tough, very tough, but I wonder how much abuse this and other drawing pads can take. Kids, one of the main targets for this product, can be rough on their toys, and I can visualize Mom or Dad sitting down at the computer and finding a big tear across the surface of the graphics pad.

Actually, the Power Pad itself may be fairly durable, but the templates most Power Pad software uses is definitely fragile. If you use the Power Pad's music software package, you also get a large plastic template with a keyboard printed on it that fits over the entire surface of the graphics pad. Guide notches on the edge of templates fit under the lip of the pad and ensure a snug fit.

The templates are part of the reason the Power Pad is so versatile, but their thin plastic frames and the plastic surfare are bound to suffer in hard use. Fortunately, Chalk Board sells replacement templates for a very reasonable $3 (plus another $3 for postage and handling). The templates are both a strong point and a weak link, but offering replacements for $6 lets you use them without worrying about whether they'll last through one more wild and rainy Saturday when the scout troop camps out at your house.

The Power Pad hardware does nothing unless you have software designed to work with it. Lack of software, however, is not a problem. Chalk Board already has a number of very good programs available for the Power Pad, and many more are to be developed and marketed this year. Here's a look at what is currently available for the Power Pad.

The Micro Illustrator

I said there was a catch in the $99 price. All you get for $99 is the Power Pad itself. It works with the Commodore VIC20 and 64 computers, Atari models, all versions of the Apple II, and the IBM PC and PCjr. Owners of Apple and IBM computers must also buy a Power Pad Starter Kit. The Apple version of the starter kit is another $49.95. The kit has the cable needed to connect the pad to your Apple. It uses the game paddle port inside the Apple, and making the connection is the hardest part of using this product. Be careful or you'll bend the fragile pins on the Apple end of the connector. (The Apple version of the KoalaPad has the same problem.).

The starter kit also includes a program called the *Micro Illustrator* that lets you use the Power Pad as a drawing aid. Does the name of the program sound familiar? It should. This is the same program that comes with the KoalaPad. Apparently, both companies bought distribution rights to the program. Steve Dompier and his company, Island Graphics, are certainly getting around!

Micro Illustrator works about the same on the Power Pad as it does on the KoalaPad so I'll only mention the differences. First, there are no switches on the power pad. Instead *Micro Illustrator* comes with a special plastic template that fits over the drawing surface of the pad.

If you want to get the *Micro Il-*

lustrator menu on the screen, all you need to do is press the word MENU, which is printed on the template. Press the words PEN DOWN, press the word LOCK on the pad, and then move the stylus to draw even if you take your finger off PEN DOWN. On the KoalaPad one of the two switches at the top of the pad serves the same function as PEN DOWN, and the other is LOCK. Both methods work fine, although you don't have to push as hard on the KoalaPad switches.

All the modes available on the Koala version of *Micro Illustrator* are available here too. You can draw lines, points, rays, and both outlined and color-filled circles and rectangles. One additional mode is SCALED. In other modes you can treat the surface of the pad as a duplicate of the television screen. If you draw a line across the top of the pad and another across the bottom, you get a line across the top and bottom of the screen. If the lines are drawn all the way across the pad, the line on the screen will also go all the way across the drawing area on the screen.

In the SCALED mode two things are different. The lines generated on the screen are shorter than they would be in the normal mode. If you draw a line at the top of the pad you get a short line at the top of the screen. Now if you lift the stylus and draw another line at the bottom of the pad, you'll find the line at the top of the screen just gets longer. The second line begins at the end of the first one. That takes a little getting used to, but some applications may profit from this approach. Most of the time, however, you'll want to use one of the standard modes.

The Power Pad version of *Micro Illustrator* has a better, more detailed manual, and the program works on a bigger pad. In addition, the Power Pad is capable of sensing that you are pressing down in more than one location. The KoalaPad can only sense one point at a time. You'd think those features, and the larger drawing surface, would make Power Pad a superior product for drawing. Unfortunately, things aren't that clear cut.

The problem is with the sensitivity of the pad itself. I found I could produce better, more precise drawings on the KoalaPad because drawing was easier to control on it. Some people may prefer the feel of the KoalaPad, others will like the larger drawing area of the Power Pad.

Leonardo's Library

The Power Pad itself may be less desirable as a drawing device, but it has a ton of excellent software for it. Chalk Board calls its library of software for the

Power Pad Leonardo's Library. The company plans to offer programs in six different subject areas—visual arts, music, mathematics, science, language arts, and social studies. These programs turn a relatively ordinary graphics pad into an outstanding product. They are priced from $25 to $30 and each program comes with a special overlay template that customizes the pad for that application.

The first Power Pad program I saw was *Music Maestro*. Like other programs from Power Pad it was packaged in a large, professionally designed plastic case that must be the marketing department's delight. It looks great. The template for *Music Maestro* fits over the drawing surface of the Power Pad. It shows a two octave keyboard, with black and white keys at the bottom and a musical score in the middle. The program can be used to teach music fundamentals to children, but it is also a sophisticated music-synthesis machine. Press middle C on the score or on the keyboard and you hear the note as well as see it displayed on the screen. Children can *play* the keyboard on the Power Pad and create musical compositions that can be heard immediately or stored in the computer's memory, or on disk, and played later. And because the Power Pad can tell if you're pressing on more than one location, you can play chords simply by pressing on more than one key or note symbol. This is an excellent program.

Another Power Pad program, *Logic-Master,* starts with some excellent color graphics and neat tunes. This is a puzzle solving game in which you must guess a secret code such as "blue heart, purple spade, green diamond." I didn't find this game especially interesting, but if you're a code buff, it offers several variations on that theme. The computer gives you clues, keeps track of the time you take, and lets you determine the type and complexity of the secret codes you'll try to guess.

I liked another program, *Bear Jam,* better. It is one of Chalk Board's programs for young children. *Bear Jam* teaches kids prereading skills such as shape and color discrimination. The plastic overlay for *Bear Jam* is colorful and busy. It has six color swatches printed on it, six shapes such as diamonds, squares, and circles; and game control squares that let you select which of the six games available you'll play. Dominating the template is a friendly black and white bear who giggles if you push his belly button.

If you choose COPY, one of the six games, the program displays three squares on the screen. Each square has a shape in it and each shape carries a particular color. The pattern might be a green circle, purple heart, and marshmallow (white) triangle. Below those three squares are three blank squares the child must fill with the correct shapes. To fill the first square a child would press 1, then the circle shape, then the green color. A green circle would appear on the screen. When all three squares have been filled with colored shapes, touch

the bear's nose and he checks your answers.

If the answers are correct, the screen shows a detailed cartoon of the bear with a slice of bread and a jam jar. The child can press a color to decide what flavor of jam the bear gets to eat. That done, you see the bear eat the jam and smile. Kids will love it. If some of the answers are wrong, pressing the bear's nose causes the incorrect answers to disappear and the child gets to try again.

Other games in the *Bear Jam* package require children to decide which two of three shapes are exactly the same, or which shape is completely different from the others displayed.

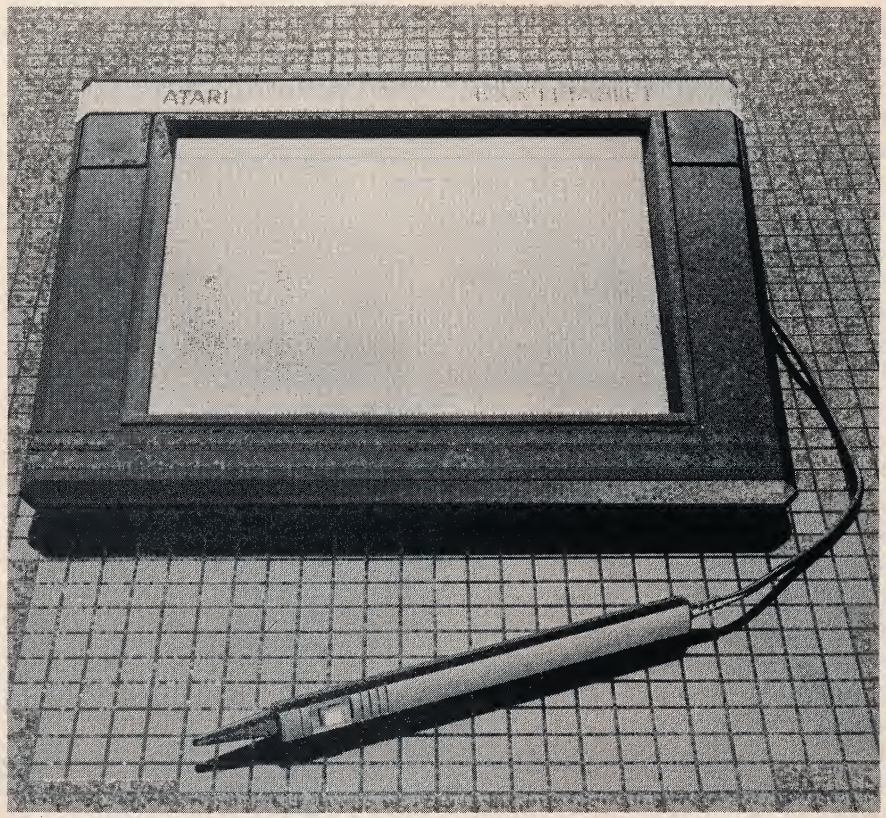
You may consider matching shapes and colors, or identifying the diamond in a row of hearts to be too easy. It is, for adults, but the skills these games teach are things pre-schoolers must learn before they can tell the difference between those 26 funny shapes called The Alphabet. It is an excellent example of where we should be headed in educational software.

Chalk Board also had good programs for older kids and adults. *Leo's Links* is one of these. It lets you design a golf course, hole by hole, and then play a round of golf on it. You can select the location of each hole, lay out the greens, place the hazards, and decide the shape and length of the fairways. As you create your golf course it shows up on the screen in very good high resolution multicolor graphics.

If you're anxious to play, the program comes with a predesigned golf course, but lots of people will probably want to design their own. Original designs can be saved on a disk and used later if you wish. Playing involves selecting a club and the direction you want to aim the ball. As in the real game you can select from a variety of clubs from irons and woods to a putter.

This is a complicated program that takes a while to play, but it is enhanced by the Power Pad. Each of the commands is printed on the overlay along with relevant symbols. If you want to use a nine iron, just press the 9 and the picture of an iron. Golf nuts will probably like this one.

In general, I was impressed with the



software available for Power Pad. There are weaknesses and limitations in most of the current programs, but if I had to grade them I'd give all the ones described above at least a B. (The average grade for educational software today is probably D+.)

It is this variety and quality of software that is Power Pad's strongest selling point. By the time you read this article, the company should have many more programs, both educational and recreational, that use the device.

If you want to write your own software the Power Pad Programming Kit shows you how to do it in BASIC. It comes with a template with a graph paper grid on it and a forty page manual. I like the KoalaPad hardware better, but the Power Pad has more software in the educational and game categories.

OTHER GRAPHICS TABLETS

The KoalaPad and Power Pad graphics tablets are the most popular ones today, but several others are also available. Atari has a graphics pad, called the Touch Tablet, that is about the same size as the KoalaPad and retails for $90. It works on all Atari computer models. It uses a program called *AtariArtist* which, as you might expect, bears a striking resemblance to *Micro Illustrator*. *AtariArtist* comes in a cartridge instead of on a disk, but appears to work in basically the same fashion as *Micro Illustrator* does on other computers.

Radio Shack's graphics tablet for the Color Computer has an 11-by-13 inch drawing surface which is larger than most, but the price ($350) is high. Both Radio Shack and Atari have a limited range of software for their pads and the past history of both these manufacturers suggests they won't set the pace for getting out additional software packages for their pads. Perhaps it's an overgeneralization, but I think companies like Chalk Board and Koala, whose existence depends on supporting their graphics pads, are more likely to get out new programs that use their pads than a computer manufacturer. Computer manufacturers have a lot more irons in the fire and are more likely to put a graphics pad program on the back burner while they get something else out.

THE COMPUTER MOUSE

The computer mouse is a palm-size device with small wheels or a ball on the bottom. As the mouse is moved on a sur-

face the wheels (or ball) move, and this movement generates a signal that is transmitted to the computer through the mouse's *tail.* The tail is the wire that connects the mouse to the computer. In most systems the data sent to the computer controls cursor movement. If you move your mouse to the right on your desk, the cursor on the video display also moves to the right.

The computer mouse has been around for many years, but it received minimal attention until Apple's Lisa computer came out last year with one as standard equipment. The Lisa originally cost around $10,000 and few of them were sold. In January, the Apple Macintosh was announced. It costs just over $2000 and also comes with a mouse.

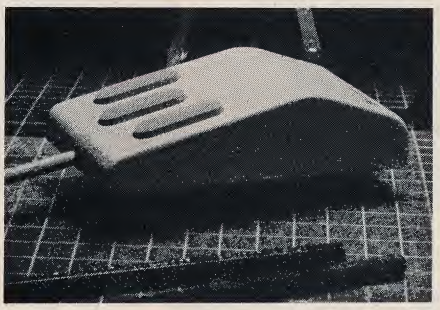
Many reviews have given high praise for programs and computers that use a mouse for input. A program might present a menu on the screen and let you roll the mouse around until the cursor is over the option you want to select. Then you press a button on the mouse, and the computer knows what you want to do.

With a word processing program you might use the mouse to execute a delete function. If you want to delete several sentences, just use the mouse to move the cursor to the beginning of the first sentence to be deleted. Then press a button on the mouse, and move the cursor over all the sentences to be deleted. As the cursor moves across a word, it changes color to indicate it has been selected for deletion. When you've marked everything you want to delete, press another button on the mouse and the unwanted sentences disappear. The word processing program called *Vision* incorporates mouse technology to speed up many editing functions.

Another way to use a mouse is to move it around to create graphics on the screen in much the same way you do with a stylus on a graphics pad. In fact, a program for the Apple Macintosh works much like the *Micro Illustrator* program does with graphics pads. You select shapes from a menu on the screen by moving the mouse over them and pressing a button.

Before you decide a mouse in your computer might not be as bad as you thought, take some time to play with one at a store. Some people have difficulty getting the relationship between mouse movement on their desk and cursor movement on the screen. If you have to stop and think which way to move the mouse each time the cursor needs to be moved, that will slow you down instead of speeding things up.

Using a mouse means you have to take your hand off the keyboard. If you are a hunt-and-peck typist, using a mouse may let you do many things far faster than they could be done from a keyboard. I'm a touch typist and average around 80 or 90 words a minute. I'm not that impressed with the mouse because it slows down my typing. I have to remove my hand from the keyboard to move the mouse.



In addition to the mice that come with Apple's new models, there are several mice available now for the IBM PC and PCjr. Mouse technology should soon be available to owners of other popular computers from Commodore, Atari, and Radio Shack. Mouse House is one of the leading manufacturers of these little critters. Their mechanical mouse sells for about $300, plus the cost of a special interface. Microsoft, the software company who created Microsoft BASIC, also sells an IBM PC compatible mouse. It is $195, and works with several of Microsoft's programs. KeyTronics, the keyboard manufacturer in Spokane, Washington, also has a neat mouse for the IBM PC. It plugs into the serial port on the PC and works with some of the existing PC software.

Unfortunately, the computer industry has no mouse standard, so there is no guarantee that the retrofit mouse you buy today will work with the software you buy tomorrow. If mouse technology has great appeal to you, consider buying a computer like the MacIntosh that already has a mouse.

THE LIGHT AT THE END OF THE PEN

A light pen is a pen-like pointer connected to the computer. When you touch the screen with the pen, the computer can sense where the pen is located by reading the signal it transmits. That feedback can be used in several ways by programs that accept light pen input.

About three years ago, several light pens came out for personal computers. Although the computer magazines printed lots of articles on their use, none of those pens sold well. They were generally advertised as educational products that made it easier for people to take multiple tests by computers. That use didn't excite many people.

Today, light pens are coming back, but the emphasis is not on their educational uses. They have now become graphic drawing aids. Atari's announcement of a $100 light pen says, "Now you can turn your television screen into an electronic canvas with the help of an Atari Light Pen."

Atari's pen comes with software called *AtariGraphics,* a program similar to the one that comes with their graphics tablet. You may remember that *AtariGraphics* is something like an Atari version of *Micro Illustrator.* Atari's light pen software was designed by another company, as was its pen.

Several years ago a young man named Steve Gibson developed a light pen called the LPS II that worked with the Apple II computer. The pen sold for $195 and came with a comprehensive set of programs that let you create pictures, diagrams, and other graphics by drawing directly on the video screen. With the proper software the computer can draw a variety of graphics on the screen at locations indicated by the pen. At the simplest level you place the pen on the screen, move it around, and the computer draws a line of the screen that traces the pen's path.

It is Gibson's light pen that is now called Atari Light Pen. In addition, Koala Technologies has announced they will also distribute the pen, under the name The Gibson Light Pen. Koala will offer models for the Commodore 64, the IBM PC and PCjr, and the Apple II, II+, and IIe.

The exact price of the pen from Koala had not been set when this was written, but it will probably be around $200. That price will include a sophisticated graphics programming language called *Pentrack Language System* and a graphics drawing software package called PenPainter, which serves many of the same functions as *Micro Illustrator*.

Several other companies also sell light pens for popular home computers. Tech-Sketch, for example, has a nice light pen that works on the Atari, Apple, and Commodore 64 computers. This pen sells by mail for a very low $40, if you have anything but an Apple. The Apple version requires an extra interface card and sells for $100. This light pen comes with software that lets you draw freehand with the pen, as well as create designs from such standard shapes as squares and rectangles.

Tech-Sketch also has a line of inexpensive programs that work with their pen. *Shape and Color Recognition*, for example, costs between $15 and $35 depending on the computer you have and whether you buy the program on cassette, disk, or cartridge. The program presents three items at the top of the screen and one at the bottom. The child's job is to match the item at the bottom with one of the three above it. To select an answer touch the single items with the pen and then touch the item that is a match. If the answer is right, a smiling face is displayed. If the answer is wrong, a sad face appears and the child gets another chance.

Tech-Sketch has several match and language programs for elementary school children, as well as programs like *Piano Player, Simon Sez, Word Search*, and *Paint-N-Sketch*. The programs don't have the slick sophistication of those that come with the Gibson pen but you're not paying $100 to $200 either. (Tech-Sketch does offer a more expensive version with sophisticated graphics software.)

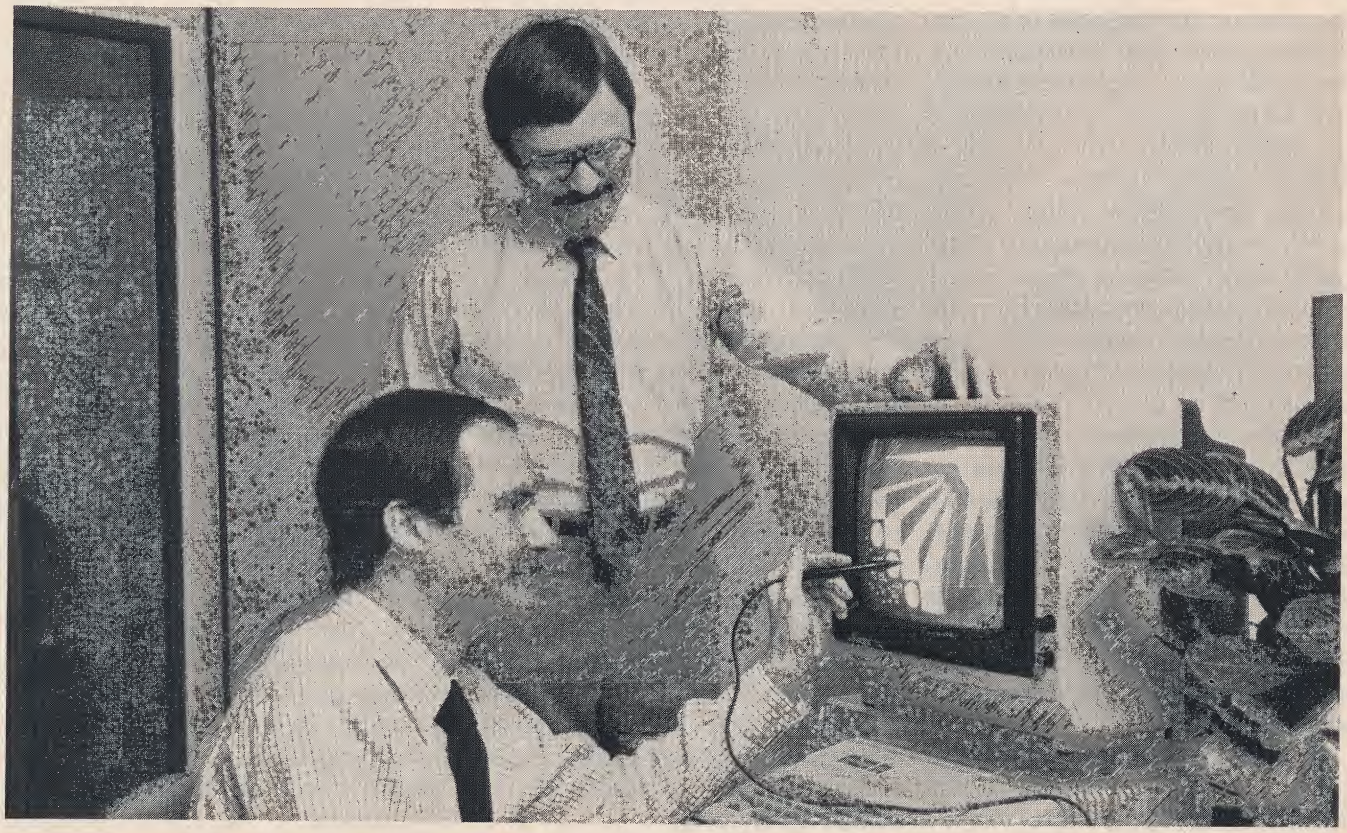
The less expensive Tech Sketch pen works reliably, but you may have to turn up the brightness control on your television or video monitor to get it to work properly. This pen requires you to press a button on the side of the instrument to indicate you've placed the pen where you want it on the screen. More expensive models have an easier to use touch ring instead. The touch rings work like those elevator buttons that sense your finger even through you don't actually push a mechanical switch.

Some people find it easier to create graphics with a light pen than with a graphics pad because you put the pen on the surface where the design will be drawn. Others will prefer a pad because they can draw on one surface and get an unobstructed view of the screen.

ARTIST'S PROOF

Pens, pads, and mice—which one is best? It all depends. It depends on what you want to do with it, what software is available, and what your personal preferences are. All three devices can be used to replace the cursor control keys on your computer's keyboard, and for creating colorful graphics.

In the final analysis I think two factors are probably most important to the person shopping for an alternative input device. First, how much software is currently compatible with the device and how much will likely be available in the future? Second, how does the device fit your way of working with the computer? I hope this article has alerted you to some of the things these alternatives to a keyboard can do and what to look for when you go shopping for one. Happy computing. ●



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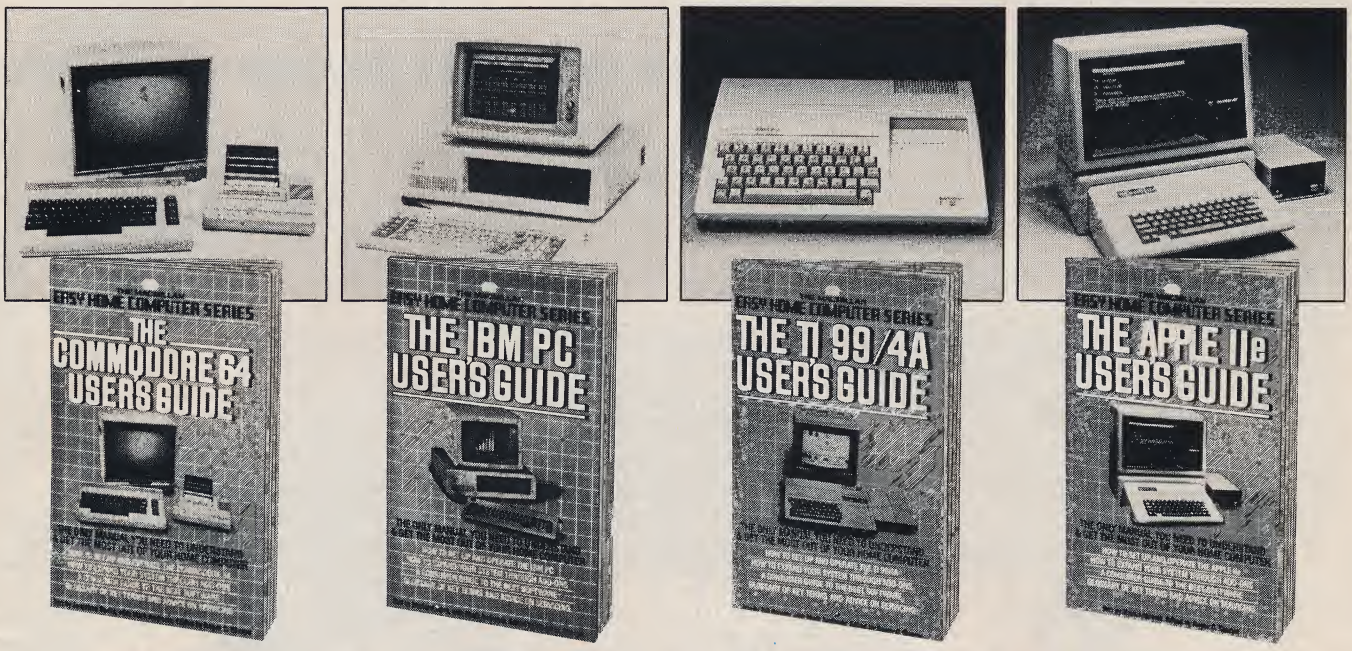
TI 99/4A · APPLE IIe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EAST MEETS WEST

A behind the scenes report from Japan

By CRAIG STARK

For years they've been coming to the industry trade shows, cameras and notebooks at the ready. Occasionally they've exhibited a prototype or two, but except for a few models (such as NEC's PC-8201A lap computer) their activity has been confined to reading our reactions rather than making sales. At the end of each show reporters have gone home puzzled, convinced only that they'd be here in force next time.

"They," of course, are the Japanese. Well known for their take-over of the U.S.-built high-fidelity industry (almost without effort), they have long been expected to do the same to America's home computer market.

THE AMERICAN INTRODUCTION TO MSX

Last June, Spectravideo and Microsoft joined with some fourteen Japanese companies (NEC, Hitachi, Matsushita, Sony, Canon, Mitsubishi, Toshiba, Fujitsu, Kyocera, General, Yamaha, Pioneer, Sanyo, and JVC) in announcing a new "MSX Standard." This standard would allow software designed for any MSX computer to run on any other. Microsoft would supply both the BASIC and the MSX software, and each manufacturer was to build his own machine, using the proven Z-80A (8-bit) microprocessor and a Texas Instruments 9918 video driver.

The expected MSX invasion seemed set for last Winter's Consumer Electronic Show, or, at the latest, for May's Comdex or June's C.E.S. When MSX remained a "sleeping giant" at the January CES, Editor Mark Brownstein still reported the consensus view "that the MSX agreement may become a standard for low-end computers in much the same way that CP/M and MS DOS are standards for higher priced (and more capable) computers."

On a recent visit to Tokyo, however, discussions with several leaders in the Japanese computer industry raised doubts that MSX machines will ever find their way in any significant numbers into this country.

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MSX IN JAPAN

As several of the accompanying pictures suggest, MSX-type computers are selling in reasonably large numbers in Japan. According to Yoshio Yamaguchi, manager of the Micom-Base computer store in Tokyo's famous Ginza shopping district, their appeal is primarily to youngsters who want to play computer games and to those who simply want to learn BASIC programming.

A color TV set is the usual monitor. While a disk operating system (MSX-DOS) and had been promised (July is the target date), none of the machines I saw could yet utilize floppy disks.

While cassette ports are provided, the MSX software is principally sold in the form of plug-in ROM (read-only memory) cartridges. Random-access memory ranges from a high of 74,800 bytes (on the very popular Sanyo MPC-10) to only 16 kilobytes on the less expensive models. List prices for the machines range from U.S. $225 to $340, though these are often reduced by approximatey 10%, even in the Ginza.

In Tokyo's Akihabara district, where literally thousands of electronics vendors, large and small, ply their trade, discounts are slightly more generous.

LIMITATIONS

Among the Japanese themselves, the limitations of the MSX system are widely admitted. There were, for example, no word-processing systems available for it either in English or in the simplified-character Japanese called Katakana, let alone in Kanji, full-character Japanese.

In Japan, if you want word-processing and spread-sheets, you cross the unofficial line from the home to the personal computer, which uses either CP/M (for 8-bit machines) or MS-DOS (for 16-bit machines). As one large software representative put it, "MSX is not an operating system so much as a utility which allows existing software, written in BASIC, to be ported to another machine."

The potential universality of the system was dealt a heavy blow when NEC, which accounts for approximately 45% of all domestic Japanese computer sales, decided against producing machines that use the MSX standard. Since NEC has so much software of its own—which runs only on NEC computers—by producing a machine that uses MSX, NEC would only be helping its competition.

Further, by standardizing on the TI video chip, the potential screen resolution of the MSX system was reduced to less than what the individual companies, using their own (incompatible) operating systems, can achieve. The question about MSX is why the Japanese should try to establish in America a "home computer standard" they are not happy with themselves?

The recent history of the U.S. low-end computer market is not a very attractive prospect for anyone these days, including the Japanese. Texas Instruments, Mattel, and Timex-Sinclair are completely out of the business; Atari and Commodore, though servivors, have been deeply hurt by price-cutting wars; Coleco has reported astonishingly large losses on its Adam operations. Despite a powerful advertising campaign, even the more costly Epson's QX-10 has not fulfilled its sales expectations. In Japan, and here, there seems to be growing doubt about the future commercial viability of any 8-bit home computers.

REVISED PLANS

According to my sources, there will be a significant influx of Japanese-built machines into the U.S. this year, beginning with the Comdex Show at the end of May. The very same Japanese companies originally mentioned above in connection with MSX will be there. (Failing that, they will be at the NECC

in July or at the Hanover show, in Germany, a little later.) But they will be selling, primarily, 16-bit MS-DOS machines based on the IBM PC.

THE FUTURE

Mike Arashiba, the Japanese OEM Director of Micropro (makers of WordStar), summarized the current situation by noting that "The Japanese historically go with a winner, and the winner is clearly the IBM PC." However, as many EHC readers may already know, the 16-bit MS-DOS operating system is a necessary, *but not itself a sufficient,* condition for being able to run software written specifically for the IBM PC.

Many already-available 16-bit computers running under MS-DOS lack some of the I/O (input/output) circuitry that IBM has built into a proprietary ROM chip. Without this, even MS-DOS computers will not run such popular programs as Lotus 1,2,3 and Flight Simulator.

When pressed about "compatibility", Arashiba replied that the Japanese manufacturers were fully aware of the problem, and will be using "a very PC-DOS-like MS-DOS. They intend to achieve complete utilization of IBM PC software, or there's no point in their using MS-DOS at all. It's a pure marketing thing."

Technically, the necessary I/O provisions will have to be simulations of what the PC does, or legal problems would arise, but from the user's point of view there will be no incompatibility with IBM software. As for the cost of the Japanese machines, the lowest, the Sanyo MBC 550, is priced at about $1,000. Other companies' models, some with dual processors (8- and 16-bit) or other "IBM-plus" features will cost more, but still significantly less than the IBM machines, or they'd have little basis on which to compete.

Some Japanese companies will also introduce CP/M-80 (8-bit) computers that can later use a plug-in softcard to expand their capacity to 16-bit MS-DOS. (Although not made by Epson, U.S. dealers are said already to have such a 16-bit card available for that 8-bit machine.)

For those Japanese manufacturers who achieve only partial PC-compatibility, the President of Digital Research's Japanese operation, Masaho Okabe, delivered the coup de grace. DRI's Concurrent CP/M, which permits several programs to reside simultaneously within memory (so you can use your word-processor to write appropriate inserts into your spread sheet) has a "PC-DOS Emulation Mode" that will run all IBM software under CP/M!

Not all the Japanese computer manufacturers will try to sell their new machines under their own names because they face the problem of lack of distributor networks in this country. Some will work in conjunction with established retail chains (i.e. J.C. Penney or the like), gaining both outlets and some feedback about U.S. tastes. For example, some Japanese computers come in colors we would not find attractive.) Whatever the name on the outside of the computer, it's design aim is the IBM PC. The war between two vast empires is about to begin in earnest. ●

TABLE SETTINGS
New designs in computer furniture

By PAULA S. STONE

O'Sullivan's computer workstation

Julie Ann bought a home computer and monitor just slightly over a year ago. She carried it home to her apartment and set it on an extra table in a corner of the living room. The table was rather small so she stored the printer and paper under the table until she needed them. Julie used her computer several times a week to write letters, keep track of her accounts, and sometimes even play a game —especially when friends were over.

Within a few months, Julie realized that it was inconvenient to keep bringing the printer from storage any time she needed to print something out. And the chair that went with the kitchen table was really too tall for her when she used it with her computer. Her legs wouldn't fit under the table properly causing her to slump which made her back hurt. Besides the discomfort, the setup just didn't look very good.

The solution? Julie decided to invest in some computer furniture.

Many people who buy home computers without having the proper furniture end up buying "computer" furniture (that is, furniture specifically designed to be used with computers) within a year of the computer purchase. Some hold out longer, while others buy computer furniture within a few weeks.

Computers, after all, are unlike other appliances and machines (with the possible exception of home stereos and maybe a television-video tape-recorder). Computers usually have lots of pieces (called components) counting the computer, monitor, printer, and maybe extra disk drives and a modem. Supplies, like printer ribbons, pencils and pens, and boxes or packages of software and disks need to be stored somewhere. There are also all those cables and wires to connect it all.

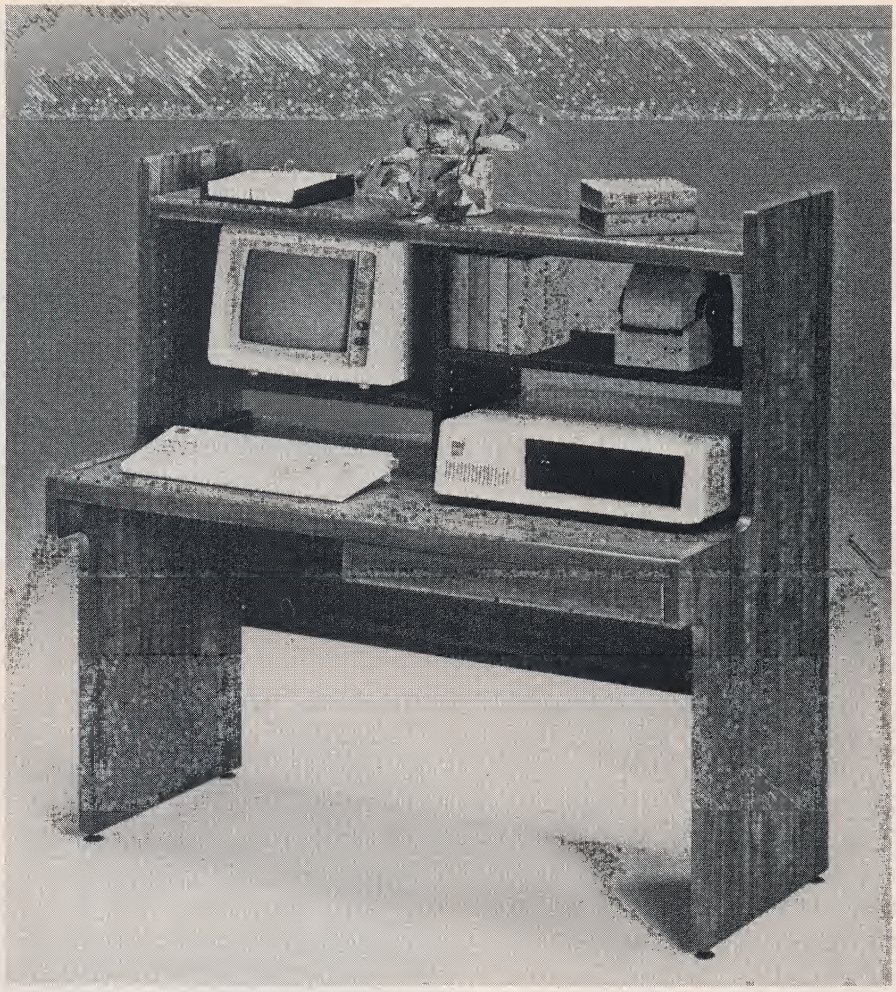
NOW DESIGNED FOR THE HOME

Just a few years ago, the only type of computer furniture that you could find was built specifically for offices. That

has certainly changed. Many office and home furniture manufacturers, plus a host of new companies, now offer furniture for the home user. It can be bought in computer, furniture, and discount stores as well as surplus business and salvage outlets.

The new generation of home computer furniture is attractive and comes in a variety of styles, colors, and sizes. It's designed to blend with the home environment whether you use your computer in the living room, bedroom or in a home office.

Computer furniture is available in many combinations; these can range from the simple table, to elaborate table and drawer combinations called work stations. regardless of the number of pieces, and the cost, the main ingredient to look for is comfort. And, to show how very important this is, there's even a special word for it—ergonomics—that salespeople may throw around. (Or, it may appear in sales brochures and ads.) When furniture is designed with proper ergonomics in mind, it is more comfortable to use. This in turn helps make you more functional and productive.



Gusdorf offers a variety of work configurations

A TABLE ISN'T A TABLE ISN'T...

Most computer setups are centered around the simple table, desk, or a modified version of either called a work station. Work stations are basically tables, designed to be the most convenient height with ample (but not too much) table top space to put your computer and a few other components on.

Work stations may have drawers ranging from a small "pencil" drawer to house the barest of supplies to "box" drawers that have enough space to put envelopes, pencil sharpeners, staplers, and other common office supplies. Some even have "file" drawers, sized to store 8 to 11 inch folders like a filing cabinet, but work stations with file drawers are most often promoted to the desk status.

Table top sizes vary, of course, but they can also come flat or with a "comfort edge"—a slight angle to the edge of the table used to rest the hands. A number of shelves can be permanently attached to the rear of the table top with or without a backing. Sometimes, additional shelving (called a "hutch") simply rests on the table top and can be removed. Shelves are most often used for monitors, software, and supplies.

The sides of the table top are called panels and these may help construct shelf-type compartments called "electronic bays". The panels can be plain or vented to allow for air circulation to prevent overheating in case you store your computer, disk drives, or other components in one of the bays. Sometimes a "modesty" panel, a panel that either partially or fully covers the back of the table is used to increase the sturdiness of the work station.

There may also be special slots for cables to pass through or "cable cutouts, troughs or vertical cable channels" used to run cables through and keep them in one place and not underfoot.

The rollers or casters that come on the bottom of chairs, tables, and printer stands are especially useful features when it comes time to move furniture. Some of these have leveling guides between the legs and castor. These levels are a little thing to look for, but, as their name implies, they level the furniture making it more comfortable and sturdier.

WILL YOUR PRINTER STAND ALONE?

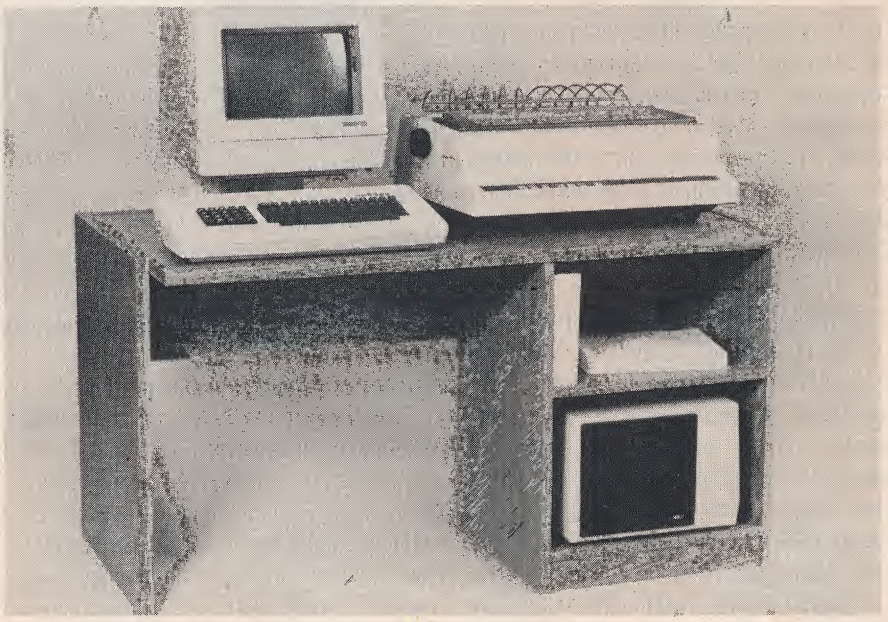
Printer stands range in price from around $50 up into the hundreds of dollars. Features vary almost as much as the desks, but the main criterion is function with sturdiness since the stand will be subject to a lot of vibration from the printer. printer.

Some printer stands that can be used equally well in the home or office offer some fancy features. They come with a flat surface to sit the printer on while others let you bolt your printer onto its surface. They can come with a shelf underneath the printer's surface to store the paper, a slot for the paper to feed through, a wire rack to catch the paper as it scrolls out of the printer, and casters. They can also come with none of these features and work equally well for you.

Some people prefer to set the printer on top of the table, desk, or work station and let the box of paper rest on the floor. as for myself, I use an old metal typewriter stand that has a top just slightly larger than either of my two printers. It

has casters which make it easy to roll if I need to get to the cables; two fold-out wings that can be used to put the papers that I have just printed out, floppy disks, and other materials; and a bottom shelf for holding paper. It's sturdy and functional and belongs to the days before printer stands were common items in households with computers.

Most computer furniture is made from a high density pressed board covered with a veneer to give an oak, maple, or walnut appearance. The surface (which may be a high or low gloss finish) is treated so it is easy to clean. Some furniture offers a combination of pressed board and lacquered laminated available in a virtual rainbow of colors so that the pieces can blend with nearly any decor.



Innovative designs from Atlantic Cabinet Corporation (top) and Panel Concepts (bottom)

SHOPPER'S CHECKLIST

Fortunately, there are several predictable features you can look for when shopping for computer furniture. (I would like to add here that not all "computer furniture" comes with that label.) Many tables and chairs (either bought or made at home) can be just as comfortable (and useful) if these major features are kept in mind.

1. Tables and chairs should be an appropriate height to let you sit comfortably with your feet under the table. This distance is actually measurable. The seat of the chair should be adjustable from 17 to 20 inches from the floor. It should also support the lower part of the back and, optimally, have arm rests to support the arms. *Remember — more support, less fatigue.* Chairs generally range in price from about $50 to $120. Table tops are most ergonomic when they are 26½-inches from the floor. Sturdiness is another key consideration. Prices for tables start about $40.
2. There should also be enough distance between your head and the monitor, keyboard, and even the material that you are using. This helps to increase the readability of the material and reduce neck and eyestrain. The monitor is best set at a height, angle, and distance so that when you look at it your eyes can look straight ahead at the screen without pulling your head too far up or down. Ideally, the eyes should be able to scan from a 15 to 30-degree range to cover the entire screen. Check to make sure you can place the monitor in the most comfortable position.
3. You may also want to buy a floor or desk lamp. Light sources should be controlled to avoid reflecting on the monitor screen or in the eyes. Excessive light falling directly or indirectly on the screen can also create glare. (If glare is a continuing problem you may want to consider using one of the anti-glare screens that are available. Langley-St. Clair, for example, has several sizes designed to fit nearly any monitor. The company even offers a lead-impregnated screen, for about $129.00, (to help block possible radiation from color monitors.)

WHAT'S AVAILABLE?

When it comes to computer furniture, styles range from the most conservative pieces built like old-fashioned desks to the latest in modular or "stem" designs.

One of the front runners in creative design is Frontline Products, manufacturers of the Computree. The Computree maximizes vertical space by stacking shelf-like modular branch tables that support computer components on the tree's vertical stem. You can add just a few or many branches—whatever suits your needs. It seems to satisfy the need to put a lot of equipment, like your computer,

monitor, printer, and software, in a small space.

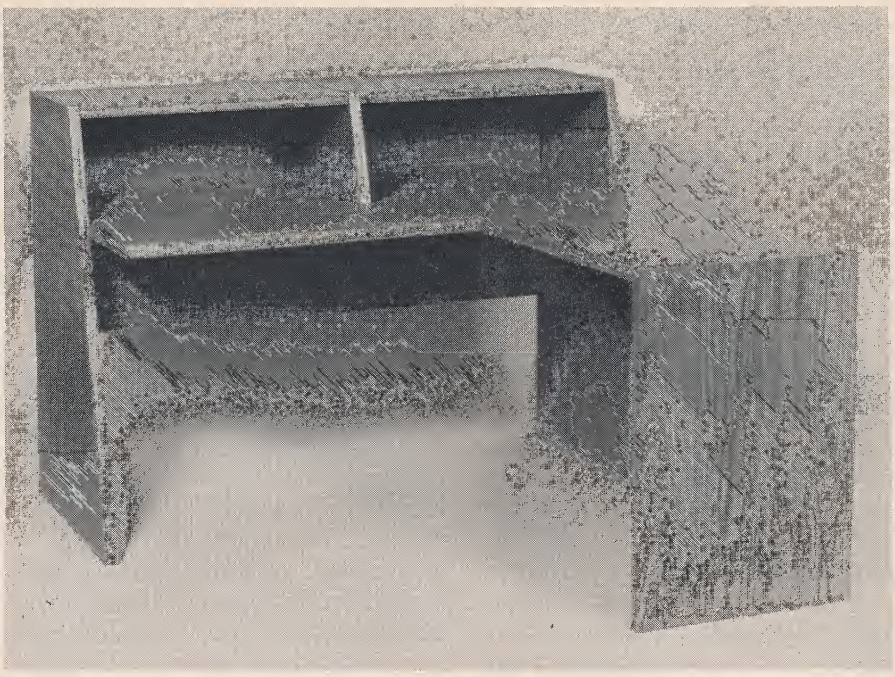
A number of options are available, including lamps, printer stands, accoustical cabinets, and surge-protecting power strips. Configurations come "knocked down" in boxes for shipping or to put in your car and prices begin at around $400.

Many companies offer several different combinations of computer furniture so you can put together your own system according to the kind of computer you have. Then as you add components, you can buy more furniture. Atlantic Cabinet Corporation offers some six different work stations with one and two levels. Some have drawers and open bays under the table top. These range in price form $120 to $290. You can also buy an extension to add to the side of the work station ($100), a storage stand ($70), and a printer stand ($150).

Bush Industries offers several work station style pieces. The Roll-A-Round table (model CT-120), with castors and priced at $79) has a monitor shelf above its table top, and a storage shelf underneath. It can also double as a printer table. The Desk (model CT-130, priced at $169) is the top of the line. It has a lockable storage compartment for software, wire harness clips on the back to help store coiled equipment cables, a recessed shelf below for storage, and levelers. It also comes with a coordinating hutch (model CTA-131, $99.95) which offers three adjustable shelves that easily accomodate monitors, documentation, or other materials.

Gusdorf has five different pieces that can be bought separately to create a computer system. They are a desk with pencil drawer ($144.95), an organizer, which is the full width of the desk and comes with three adjustable shelves for the monitor and other components ($99.95), an expander that transforms the desk into a 90 degree work station ($29.95), a printer table ($109.95), and a hutch for the printer table ($19.95). The five piece system retails for $399.95. All pieces are available with oak or walnut finishes.

O'Sullivan also lets you put together your own furniture system with the option to choose from as many as 25 different pieces available in maple, oak, and pebble beach finishes. These range from a simple desk with monitor platform ($59.95) to an elaborate desk



Atlantic Cabinet's Bi-level Computer Desk

Frontier Products' Computer workstation

system ($239.95). There are many printer stands with paper holders and slots coordinated to go with the particular units. They range in price from $74.95 to $169.95.

Overall, there are many different types of pieces that cover a wide range of styles and prices. It's best just to take your time and shop carefully. This is one area of the computer business that is just beginning to zoom and you may discover a jewel hidden in the most unlikely place.

WHAT ELSE?

In addition to tables, work stations, and printer stands, there are lots of accessories that can make your home computer station more comfortable. Computer Accessories Corporation has a number of such products. One is a turntable that your monitor can rest on that allows it to rotate a full 360 degrees. This mobility lets you turn the monitor away from glare caused by light sources (lamps, windows, etc.) that can create eyestrain. It also makes it easier to position the monitor when more than one person needs to look at the screen such as when you play a game. This turntable is available for $10.00.

Computer Accessories also has several power protection devices ranging from $99 to $199. The power protection devices let you plug in between four and six devices, depending on the model. All protect your computer and other sensitive electronic components from "dirty" power line transients, brownouts, and surges. From a master switch, you can easily control which pieces of equipment (computers, printers, monitors, modems, etc.) are "on" and "off".

If static is a problem, you may want to consider buying an antistatic floor mat. These help reduce the static electricity that can damage your computer, or at the very least cause data to be stored incorrectly on your cassette or disks. A floor mat also makes it much easier to roll your chair across the floor—a seemingly minor thing unless it requires a lot of strength every time you need to push your chair away from the table or desk. A friend of mine shopped very carefully and found one for $4.00. In standard office supply catalogs I have seen them for over $100. It pays to take your time and look around.

BE SEATED

Which brings us to the questions of chairs. There are many types of comfortable chairs to be found: plush office-type chairs with plain, tweed or vinyl covers and chrome bases are modern-looking and coordinate with most desks and tables. The old-fashioned wooden desk chairs are also attractive and comfortable as are some kitchen chairs. Again, it's what feels best for you at the particular table that you will be using.

Another convenient accessory that, more often than not, is a luxury to most home users is the acoustical cabinet. These are breadbox-like containers that are placed over the printer to reduce the noise level. The lid is usually clear so you can see what your printer is doing. This item becomes important if you do a lot of printing. ●

You *can* get bushed at your computer—with Bush Industries' Modular furniture

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COMMODORE'S EXECUTIVE PORTABLE: You Can Take It With You

By MARK BROWNSTEIN

The Commodore 64 may now be the most popular eight bit, low priced computer (Apples excepted—perhaps). And its uses have transcended much of what it was originally designed to do (at least in the public's mind).

Many 64 owners have discovered that, in spite of its limited selection of colors (only 16 compared to 128 for Atari), it is an excellent game machine. Atarisoft titles (Centipede and Donkey Kong, in particular) are standouts, as are many titles from the dozens of other companies making 64 software. With features that many feel make the 64 a stronger machine than the Apple computers, its applications have been pushed far beyond those that this small, home computer was initially intended; for playing games and learning programming.

As Vic 20s were replaced by the more powerful 64, and many families took that first step on the computer merry-go-round (often requiring the purchase of disk drive, printer, and maybe even a monitor) by buying a Commodore 64, the desire for good, useful software titles became a strong market voice.

Aside from education, many families quickly planned to use their computers to help manage their lives. Thus, numerous powerful (and even some very good) word processing, financial management, database, spreadsheet, and personal management titles were developed, and are continuing to develop. Some excellent telecommunications software allows the rapid exchange of information to and from bulletin boards, large databases, and even other computer hobbyists. The supply of home and personal management software is rapidly enlarging.

In sum, the 64 is rapidly becoming what the Apple computers seemed to be a few years ago—only less expensive, and probably more powerful. For many home businessmen, the 64 has become an important tool for personal and small business management. Too bad it couldn't be conveniently transported for use in the office or on business trips. . . until now.

THE PORTABLE 64

Commodore has recently released a portable version of the Commodore 64—a system that it alternately calls "The Executive" and "SX-64." The latter title may have been chosen for the obvious (and convenient) reviewer's comment that the "SX-64 is a SXy computer." Sorry, Commodore, Datsun used that one a few years ago. However, in fairness to Commodore the S could mean "single", as in single disk drive, since the not-yet-released dual disk version is the DX-64. But this is straying from the point.

About 15 months ago, Commodore began showing their portable computer at special shows for the public, and for those working in the electronics industry. Although it received much attention, they decided only recently to actually market the unit. (This was probably in order to give Commodore time to build the user base of garden variety 64s thereby generating the need for a portable).

It was worth the wait. The Commodore SX-64 bears a gross resemblance to many other portable computers. The cabinet is an attractive, metalized plastic, with charcoal grey highlights. At the top (or front) of the computer is a strong, black, fold-down handle that swivels so that it can be placed above, below, or in front of the cabinet. The handle has an easy, (and secure,) locking mechanism; so when transporting it you can lock the handle so it is straight up, and for using the computer you can lock it in place as a base which also lifts the unit to allow flow of air below it and raises the computer to a comfortable reading position.

At the front of the computer is a fully detachable keyboard. The background of the keyboard is charcoal gray with metallic accents, keys are off-white with gray legends. Graphic characters are printed in a lighter gray (and actually tell you more than the 64, with all 16 possible colors indicated on the keys). Function keys are a slightly darker gray color than the alphanumeric keys.

Although the keyboard at first looks and feels a bit dinky, after a short period I became easily adjusted to it, and, found it capable of supporting hard-core word processing. It is, in many ways better than the 64 keyboard, including an indicator for the shift lock key. (This one feature alone can save minutes of confusion, since the 64 can act very strangely when the caps are locked—on the 64 it's often hard to

tell). The keyboard is attached to the computer by a two foot (or so) cable, which is easily connected to the back of the keyboard and underside of the computer (and also easily disconnected).

Sides, top and bottom are clean looking and well styled. At the bottom of the unit is the connector for the keyboard; at the top is a conveniently located cartridge port (which would have been nice to see on the 64). Connections at the back of the SX-64 are approximately the same as those on the Commodore 64. From left to right they include the two controller ports, video output port, serial port (for connection of printer, an additional external disk drive, etc.), user bus, power connector, and on-off switch. Space has been well used in this machine.

IT'S NOT THE SIZE— IT'S WHAT IT DOES THAT COUNTS

In this description, we've left the best for last. When the keyboard is removed, the most striking features on the computer are revealed. (And it really is an attractive piece of work.) At the right side of the face area is a charcoal colored door (contents to be exposed shortly). To its left is a half-height 5¼ " disk drive. Above that is what Commodore calls a storage area (although I probably wouldn't want to risk storing any disks up there). Also to the left is a feature that marks the machine as a true value—a 5 inch COLOR video monitor.

Oh yes. There are switches; but what do they do? They allow adjustment of brightness, contrast, tint, color intensity of the monitor, and volume for the built-in speaker.

If you've got a good memory, you'll probably recall that there was a lot of criticism of Osborne's 5 inch monitor, and some may say that it helped to do Osborne in. In the case of the SX-64, the small monitor doesn't seem to pose much of a problem for a number of reasons.

First, in the case of the Osborne, an attempt was made to somehow present 80 column text, using a weird scrolling technique. (Although this is being written on an SX-64 using Omniwriter, a scrolling program, I'm having no problem accommodating to the display.) Second, colored characters may be easier to read than standard small green or amber characters (many programs allow you to select the combination of text and background colors to make reading easiest). Third, the Commodore's character set is probably larger than the one used in the Osborne and other small screen computers. Aside from some minor ambiguities of screen image, (the asterisk doesn't always look like an asterisk) the display has proven very useful.

The image on screen is sharp and clear, games can take on an almost photographic quality and, on the whole, the monitor is extremely good for what it's designed to do. If you find that you could live with the monitor only when you're on the road, you can always hook up to an external monitor using the cable that comes with the add-on monitor or a standard monitor cable.

SX DRIVE

The disk drive, although more compact than the 1541,works just about the same as the more familiar drive. This means that, although it is capable of loading and storing programs with the same efficiency as the 64, it is also as slow, and probably noisier. In addition to the normal grunts and groans of the 1541, on the model we tested there was also a tinny "will I fall apart?" sound, which may be related to the vibration-proofing of the built-in, portable disk drive.

Operation of the disk drive was almost identical to that of the 1541—in fact, all disk control codes are identical on both machines. If you already have a 64 and disk drive, and want to use this unit as a portable, you should be aware that the drive can be tied into your 1541 using a serial connection between the two. This would make disk copying for backup purposes simpler. Also, according to Commodore, if you have a 64 and no drive, the drive built into the SX-64 can be used for both computers. To transport the drive a cardboard vibration protector (included with the machine) must be used.

We may have avoided the point until now but, as far as we (or anyone else) can tell, functionally the SX-64 is IDENTICAL to the Commodore 64. It will run all programs, take all peripherals (except the Automodom, since the power cord is in the way, but an adapter could solve that problem), interface to other devices and appears, as we've said, to function exactly like a C-64. Therefore, if you've already got a Commodore 64, you already know how to use this neat little "portable."

PORTABLE OR TRANSPORTABLE?

Did I just put portable in quotes? By golly, I sure did. Why do you suppose I did a thing like that?

The obvious reason is that there must be some question about its portability. This is a question that has plagued computer manufacturers and users since the earliest "portables" came out—they often took up an entire desk and weighed fifty pounds or more. Is that little pocket calculator you carry a portable computer? Is a fifty pound computer portable?

For most purposes, a portable computer should be one that is easily moved (and easily set-up to be usable) from one place to another. The SX-64 isn't all that easy to carry around. For one, I didn't receive the actual specifications on its weight, it is easily a good twenty or more pounds. I wouldn't want to be carrying it around with me, although I probably couldn't do without it anymore.

The term used for computers in this approximate size range is "transportble"—the unit can be moved from place to place with relative simplicity, but it's still a lot to handle. The SX-64 would qualify as either a somewhat large portable, or somewhat light transportable.

The best way to find out whether it is transportable for YOU is to go to a dealer and pick it up. A weatherproof carrying case would be a very welcome addition to the line of accessories for the SX-64 (since there are many open connectors, and risk of water damage shouldn't be minimized).

Set-up and putting away are simple procedures. If you have a shortage of electrical plugs you may appreciate that this ready to use computer requires only one plug, instead of the three that a 64, disk drive, and monitor normally take.

COSTS AND BENEFITS

At the time that this review was written, the SX-64 had just come into the stores. Although the prototype was shown in 1983 with a suggested retail price of about $1,000, the SX-64 was seen selling for closer to $700 in the stores. Some stores even throw in a word processing program to sweeten the deal.

If the prices drop like they did with the 64 (don't count on it), it may reach somewhere in the $500-$600 price range before too long.

This all-in-one unit may be a definite plus if space is a problem, when compared to a standard 64 system. If you don't want to fight over who gets to use the TV set, the built-in monitor probably gives you the best of all worlds (*they* can watch TV, and *you* get a better display than most televisions normally display).

If you don't already have a disk drive, for a few hundred bucks more than just the drive, you can have a very good portable computer that is fully compatible with your 64. Just about the only thing you can't do with the SX-64, that you might otherwise want to, is use the monitor for anything BUT the SX-64. However, as we've already said, the monitor does its job extremely well—and that should be enough for most reasonable people.

You should certainly consider this nice, all-in-one computer instead of a normal full-sized system if you're thinking of buying a 64. The keyboard seems to be somewhat better, the SX-64 is only slightly more expensive than a 64 and disk drive by themselves (go price a 5 inch color monitor), and the overall system seems to be another relative bargain.

If you really don't need a PC or PC compatible computer—if you are happy (or think you will be) with the large selection of Commodore software, the SX-64 may be an excellent way to go.●

A TEACHER IN THE HOUSE

Educational Software Comes Home

By DEBORRAH WILLIS, ED.D.

Strolling down the aisles at the software conference in New Orleans in February, there seemed to be a subtle difference between the type of programs displayed there and the software that typically shows up at computer extravaganzas.

At first glance it seemed like any other show. There were the usual varieties of business applications (accounting packages, retail store programs, etc) with the accompanying fast-talking sales staff assuring you that theirs was indeed the very program you needed to solve whatever problem you had.

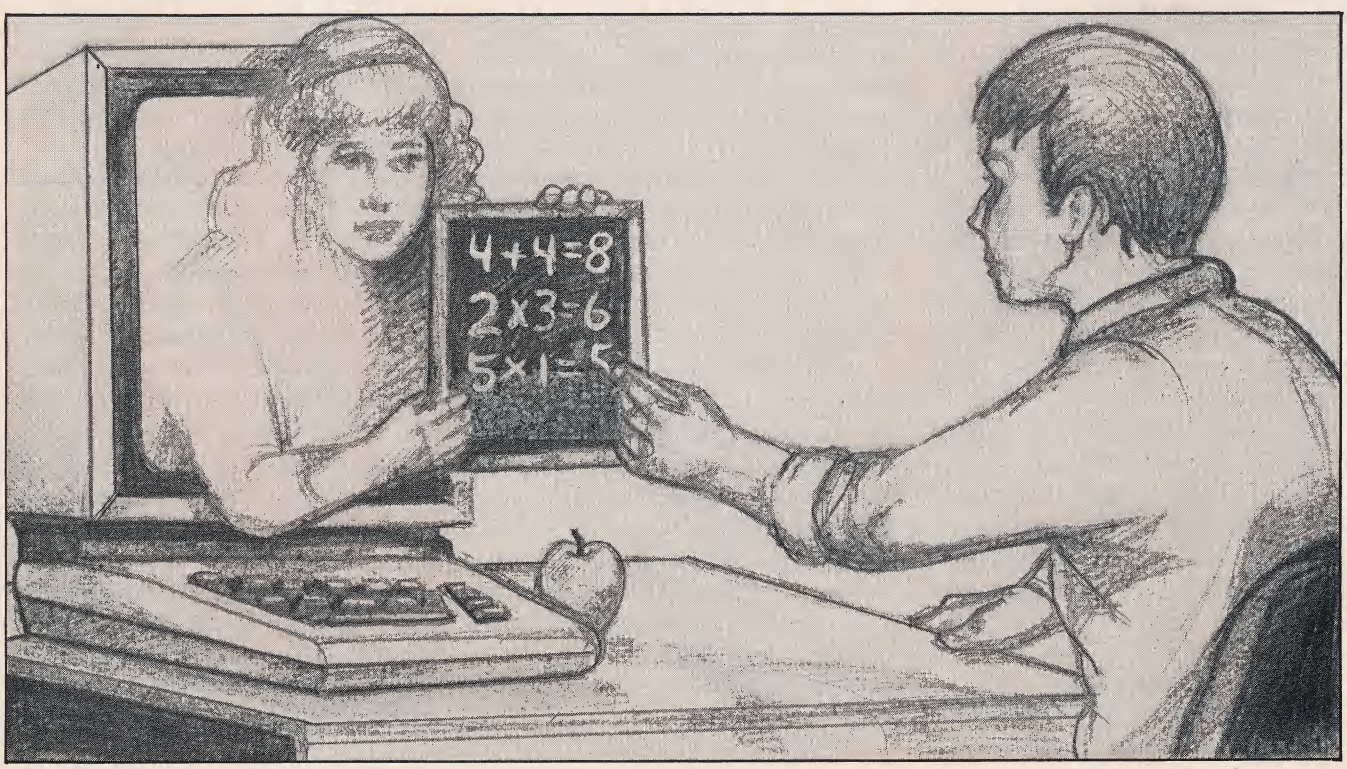
A row or so over was an audio visual presentation explaining the convenience of a toll free support line that: (1) answers their phone, and (2) employs more than one person to help work out problems with their software.

Having attempted to talk with several "support lines" (certainly not all toll free) I had the experience that they: (1) don't always answer their phones even during business hours, or (2) had only one person to answer my questions and that person was on vacation. I appreciated that demonstration. That's the kind of creative competition we've come to expect in this industry and each conference introduces another company's innovative advertising response to its' competitors.

A CHANGE IN FOCUS

Looking over software for the home market, though, showed that a shift from strictly arcade type games to educationally oriented programs is at hand. Several companies announced education programs for use at home. HesWare, which has been in the game market quite a while, is developing a music education program for children eight and older that serves as an introduction to notes and symbols as well as teaching how to compose music using a joystick or the keyboard on the computer. They also have "Turtle Toyland Jr." that teaches computer concepts for kids using turtle graphics.

The publishing company Addison Wesley showed their set of educational games for girls called *Rhiannon*. There are four different titles: "Jenny of the Prairie," "Chelsea of the South Sea Islands," "Cave Girl Clair", and "Lauren of the 25th Century." Each program is a game about a young girl's life in each setting. IBM has a series of educational adventure games for kids,



and Mindscape, a new subsidiary of SFN, has announced *SPROUT!,* a new line of learning software (they call the series "text adventures"), for kids aged four through eight.

Dilithium Press, publisher of easy to read computer books, has gotten into the educational software arena with a series of mastery based programs in math, science, and language arts called *Skill Builders.* Several of the programs have been quite successful in the schools and will be available for the home market in early summer.

LONG AWAITED

Many people took computers home with the notion that they would use them as educational tools. Software producers realized this and began developing thousands of games and "so called" educational software. Parents soon discovered that while there were plenty of arcade type programs, the number of good learning programs was quite small.

For the past several years, almost 95% of the software geared for adolescents and children has been of the "shoot-em-up" variety. Experts in the field of educational computing have been predicting that kids would eventually tire of such games and turn to the challenge of software that requires more thinking and problem solving. That's not to imply that kids will totally abandon arcade games, but most will want something that does more than give them practice in destroying tanks, UFO's, or monsters on the screen.

Hundreds of programs have since been written, marketed and sold, indicating that there is a demand for them. However, it is usually only after a program has been bought that parents and children find out how good they are. And it often seems that more time, effort and money went into marketing the software than in its development.

Most of us aren't trained educators so how can we know if a program provides a sound tutorial? Should we buy the same programs for home that the schools use? These, and other questions add up to this: how do we choose good educational software?

WHAT IS EDUCATIONAL SOFTWARE?

What is educational software and how do you pick out the good from the bad? Good, but difficult questions. First, let's deal with defining educational programs for the home.

There are a variety of educational programs, but they tend to fall into the categories of Computer-Assisted Instruction (CAI), Computer-Managed Instruction (CMI), and Computer-Based Instruction (CBI). CAI is a general category that includes drill and practice, tutorial computing, and simulations. CMI is used for administrative purposes, such as, giving tests, keeping track of grades and performance, and producing assignments. CBI programs are responsible for teaching entire concepts, remediation where necessary, and record keeping of grades and assignments.

All of these terms refer to the use of computers in some aspect of education. We are interested in educational applications, but primarily home education. For our purposes we will call programs that are used largely at home "home learning" software. Because we are concerned with home learning, we will concentrate on CAI with its drill and practice, tutorial computing and simulations.

Drill and Practice

When most of us think of educational software, we tend to think of drill and practice. The goal of drill and practice is to provide lots of practice; not to teach new material. In some ways drill and practice programs are much like the traditional flash cards that many of us used. The idea is to practice, practice, practice. In drill and practice programs, a problem appears on the screen and the student types an answer. The computer then lets the student know if the answer is right or wrong. Some programs even keep track of the problems that are missed and will ask them again.

Perhaps the biggest advantage of drill and practice is that the programs can be individualized and tailored to the student's level of knowledge. A disadvantage is that drill and practice programs tend to be interesting at first, but kids seem to get bored with them (much like we got tired of flash cards). There are more drill and practice programs available now than any other type, probably because these are the easiest to develop and write.

A tutorial program is one that teaches new material and keeps track of the student's progress. This type of program is often referred to as *Dialogue CAI* because the tutorial guides the student to learning goals through the use of questions, going from one concept to the next making sure the student masters each concept before introducing a new one. The sequence and pace is completely determined by the student's responses. The advantage of a tutorial program is that it is individualized and allows students to move at their own pace in order to understand what is being taught.

Simulations

The purpose of a simulation is to act enough like a situation to make you believe you are actually there (well, almost). Simulations take experiences that would be too costly or too dangerous or physically impossible to do in real life and lets you practice. For instance, simulations are familiar to most of us in the form of arcade games. We don't have the technology to build starships to fight all the evil in the galaxy, but the feeling of moving through space as you navigate your arcade ship across the universe to hunt down the enemy can be quite exciting.

This same type of interest can be generated in games that are instructional. For example, a popular educational simulation is a program called "Oregon Trail." (Developed by MECC [Minnesota Educational Computing Consortium] this program is available from Creative Computing for about $40. The diskette also contains three other good simulations.)

The basic premise of the simulation is that you are part of wagon train leaving Missouri headed for Oregon City, Oregon. You must decide how much money to spend on oxen, food, clothing, medicine and miscellaneous items. Based on diaries of pioneers who actually made the trip in the 1800's, the train may be attacked by wild animals, encounter friendly or hostile armies, be stranded in the snow in Wyoming or have any of a variety of other adventures.

You have a chance to buy supplies at forts along the way (similar to stops along the interstate in that provisions are more expensive) or you can try your hand at shooting deer as they run across the screen. While you make the trek, an

oxen pulled wagon appears on the screen to report how many miles you've made each day by moving along a map of the country.

The more you know about the history of the time period, geography, and problem solving, the more likely you are to arrive in Oregon alive. In the classroom this is a great program for group projects, for example, to see which wagon train arrives in one piece with the most money and/or provisions.

Since that early simulation, more have emerged that take advantage of sound and graphics capabilities on many computers. There are simulations that help learn concepts on topics as varied as running an atomic power plant to piloting a flight simulator. IBM is marketing simulations for their machines that are geared to teaching acdemic concepts such as math.

SUGGESTED FURTHER READING

Computers, Teaching and Learning, by Willis, Johnson and Dixon, Dilithium Press, (Beaverton, OR), 1983, 252pp. $9.95 (paperback).

Kids and Computers, by Eugene Galanter, Putnam Publishing Group, (New York, NY), 1982, 180pp. $7.95 (paperback).

Microcomputers: A Parents Guide, Goldberg & Sherwood, John Wiley and Sons, (New York, NY), 1983, 192pp. $8.95 (paperback).

CHOOSING HOME LEARNING SOFTWARE

Knowing to look for drill and practice, tutorial or simulation programs geared for home learning, the second question, how to pick software, is somewhat more complicated. Perhaps the best advice is, if possible, to try the software before you buy it. If that isn't possible, the following suggestions may help you ask questions:

1. Decide what you want the software to do. Are you looking for drill and practice or do you want the program to teach a new concept? If you want something that is likely to hold your child's attention, then a simulation may be a good idea.

2. Make sure the software the salesperson is trying to get you to buy will run on your machine. If the program requires 48K of memory and you only have 16K, you're likely to be hostile when you get home and try to use the program. Sometimes that information, and whether a cassette or disk drive(s) is needed, is not clear on the package. Also, is a color monitor important? If you are using a black and white TV or green screen monitor, color programs may not be as interesting or effective.

3. How much time does a lesson require? Most home learning software is written to demand not more than an hour or so of time (except for adventure simulations,) but you may want to check. Learning with the computer should be fun, not a chore.

4. Is the program easy to use? Will your kids be able to run the program without your help? Are the instructions easy to understand? Are there allowances for pressing the wrong key?

5. Will your kids be interested in the program? Does it use graphics and/or sound to help the learning process?

6. Does the company have a toll free HELP number? Although you hope you never have to use it, it's comforting to know that somewhere in the country there is help just a free phone call away.

Even the best companies sometimes have bugs in a program or gliches in a tape or diskette. If the company doesn't have such a number, then what is the store's position on helping or exchanging defective software?

Don't expect to buy a program, keep it three days, take it back to the store and try to get a different program. Most stores will exchange for the same program, and you can see why they wouldn't be too friendly about giving you a different software package.

7. How educationally sound is the program? Good drill and practice and tutorial programs will report whether an answer is right or wrong. But just letting the child know whether an answer is right or wrong isn't enough. The way that information is given is important too.

Some drill and practice software, for example, print colorful pictures on the screen if an answer is correct. If an answer is wrong, a fire-breathing dragon making loud noises may appear. Some kids may prefer the dragon to the pictures. This is not an appropriate use of sound and graphics; it encourages kids to get the answer wrong to see the neatest picture. A related issue is the amount of violence in the program. Most learning programs don't use a lot of violence, but it might be wise to check.

Based on what you want and need, you may have other things that are important in selecting good home learning software. Again, the best way to choose any kind of software is to use it before writing the check.

Interested in learning more about what drill and practice, tutorial, and simulation programs are out there for home use? Good!

Next month we'll look at drill and practice, and the following month tutorials will be covered. This final article will review home learning simulation programs. ●

A CLASS ACT
What To Expect At A Summer School For Adults

By DOROTHY L. STARK

One of the consequences of the computer revolution is that many adults have begun to return to classrooms across the country in an effort to learn more about the new technology. Those who have tried to learn about computers and programming by reading on their own soon discover that there is no substitute for "hands on" experience and a knowledgeable instructor.

The supportive atmosphere of a class can quickly help a teacher overcome fear about resuming a student's role.

For the past two summers I have been associated with an adult education program, the Montclair Kimberley Academy/Montclair State College Summer Computer Institute for Teachers. Although most teachers who attend the Institute are not working toward a further degree, the program is professionally staffed and authorized to grant graduate credits in education.

In many ways the program is representative of an increasing number of similar courses now available at local colleges, through adult education programs and other commercial sources. For this reason EHC thought you might find it interesting to read about one program which has enjoyed a measure of success.

The 1984 MKA/MSC program will span seven weeks and be divided into one- and two-week classes which can be taken separately or in sequence. These include: "Use of the Computer in the Classroom;" "Teaching and Programming with LOGO;" "BASIC Programming for the Classroom" (2 weeks); "Advanced Educational Programming;" and "Introduction to Pascal" (2 weeks).

Normally between fifteen and thirty students attend the classes where two to four teachers and two to four student aides provide individualized instruction. In terms of equipment, the MKA/MSC Summer program will feature Apple II+ //es, and Commodore PETS with disk drive capability. In previous years one or two students have been known to bring in their own computers for the programming sessions. This option might not exist in every program, so you should ask first before you enroll.

At Montclair the schedule has been planned with flexibility in mind so that students can maximize hands-on experience. Each day begins at 8:00 A.M. with coffee and doughnuts as well as open time to work on a computer. This might include practicing the basic computer operations or more intensive use for those who have a general knowledge of computing. A lecture and additional compu'er time round out the rest of the morning before the class breaks for lunch.

In the afternoon a second lecture is followed by more lab, or practice, time on the computers which lasts until about 5:00 P.M. Optional evening computer time, between 7:00 to 9:00 P.M., is also provided to those who want some extra work when programming is taught.

A diverse assortment of people attend the Institute. Most have had no prior computer experience, except for those participating in the advanced classes, where intermediate programming skills are necessary.

People learn best when they are aided in solving their own questions.

To judge from previous year's participants, about two thirds of those enrolled teach at the junior high or high school level while the remaining third are involved with the primary and elementary grades.

A librarian at a small private school attended the Institute. She began with a great fear of computers and the conviction that she would never control these machines. By the end of her first week, she had successfully completed a program to draw an intricate picture using LOGO's Turtle Graphics.

The librarian was ecstatic. She found that she *could* develop the skill (and confidence) to work with a personal computer.

The following week she wrote a synonym game in BASIC for elementary students to play in the library during their free time.

Perhaps the librarian will not do much programming in the future; however she ended her studies with the enthusiasm to encourage other teachers at her school to consider similar courses. More importantly, she developed a feeling of confidence in herself and a familiarity with computers.

Another woman enrolled in the course in an effort to more fully understand computers. She was intrigued by the latest systems and had always wondered how people told a computer what to do. A man who took the course last summer did so because he had noticed that there was a lack of computer software for students of architecture. He decided to take a year's sabbatical in order to write his own programs in this field. The classes he attended at the Institute gave him the opportunity for hands-on experience in programming. And, by the middle of the term, he had an impressive start on a series of graphically-oriented programs created to teach specific architectural concepts.

The list goes on with the reasons people give for taking the classes extremely open-ended. Some are simply curious about computers and want to become more familiar with them. Others feel the need to keep up with their students and at least be comfortable with the machines that are finding their way into more and more homes as well as schools. Some see the potential of computers as classroom teaching tools and want both to be able to judge the quality of commercial software and to write their own specialized programs. A smaller number take the course so they will be able to teach a BASIC programming course in the future.

For the most part the instructors at the Institute were in the position of their students not all that long ago. Interest in computers at Montclair Kimberley Academy really developed only after several of the faculty members themselves attended a similar summer workshop. The Academy's computer department has since grown tremendously, and now these teachers are able to share what they have learned by becoming instructors in the MKA/MSC program.

While details will obviously vary from program to program, at MKA/MSC the first class, "Use of the Computer in the Classroom," is designed to introduce students, with no computer background, to the variety of computer ap-

plications within an educational setting. Much time is spent evaluating commercial software to see what types of programs are available and to learn how to judge quality and effectiveness. There is also a brief introduction to LOGO and simple word-processing.

The second class, "Teaching and Programming with LOGO," teaches both Turtle Graphics and the list processing features of LOGO. There is also an emphasis on covering various teaching techniques needed to introduce students of different ages to LOGO, a creative learning tool often learned as an introductory programming language.

"BASIC Programming for the Classroom" is a two-week course in the fundamentals of BASIC programming language. During the first week most of the commands (such as PRINT, FOR/NEXT, and RND) are covered. In this week there is a great deal of practice is necessary to become thoroughly familiar with this language. At this stage there is a great deal of individual assistance given both by the teachers and by the student aides.

The second week introduces more advanced concepts, such as string manipulation and arrays, and concentrates on useful program features—scoring routines, menus, and random right/wrong comments, and the completion of an individually designed program for use in the classroom.

The fourth class, "Advanced Educational Programming," is designed for those who already have BASIC programming skills. Topics include: sequential and random access disk files, sorting routines, graphics, shape tables, and utility programs. Once again there is a final project that utilizes in detail one or more of the subjects covered.

"Introduction to Pascal," and while it is not designed to teach future instructors of Computer Science, it does provide a solid background in many of the most important features of the language. It is a good stepping stone towards a more in-depth treatment of Pascal. Although not a prerequisite, familiarity with another language would be helpful before taking this course. Pascal is the language chosen over BASIC by the College Entrance Examination Board (CEEB) which administered Advanced Placement exams.

The concensus is that the classes (especially those in programming) require a great deal of work. However, nearly all the reactions to the institute have been positive. Although the people who have finished the course do not all arrive at a high level of competence, nearly all felt they had gained some measure of expertise and familiarity.

One of the most imporant features of the classes is the availability of help during lab periods. At all times there are several teachers and student aides in the room to offer assistance to anyone who needs it. And former students have appreciated this aspect of the program.

The Institute's philosophy is that people learn best when they are aided in solving their own questions rather than simply being fed the answers.

An important feature to look for in any program you are thinking about attending is whether or not there are enough terminals for each person. At MKA/MSC there is a great amount of practice time to work on what was covered in lectures.

LOOKING FOR COURSES IN YOUR AREA

Although the MKA/MSC Institute is designed only for educators, there exist many similar programs throughout the country open to all adults. Often they are connected with local colleges, high schools, or computer clubs.

The structure and material covered in these classes can differ greatly, so you should find out as many details about a particular class as you can before enrolling. Some have many people in a class, are too impersonal, or have less access to computers.

Many classes are designed to make you "computer literate," a term which generally implies a familiarity with computers, that has been interpreted in widely different ways. Others are programming classes which teach you how to communicate with a computer via BASIC, Pascal, or another computer language. Certain classes concentrate on teaching a particular form of word-processing or the use of a specific database management system.

Although computer classes may bear similar titles, they often differ greatly. So be careful to choose one that is closest to your needs. Computers, after all, are not only for the young, as many are now realizing.

(For more information concerning the Montclair Kimberley Academy/Montclair State College Summer Computer Institute, contact: Montclair Kimberley Academy, 201 Valley Road, Montclair, N.J. 07042. Or contact Mrs. Jones at the Summer Computer Institute, 201-746-9800, Ext. 220.) ●

TECH TALK

FINGERTIP CONVENIENCE

The Keyboard Connection

By CRAIG STARK

In almost all home computer applications a keyboard is your link to your machine. In considering which computer to buy, the features of its keyboard should always be a crucial factor.

For example, if you anticipate having to enter large amounts of numeric data, you would try to find a model with a separate numeric keypad. While you could enter numbers using only the regular, typewriter-style keyboard, the alternate keypad would speed your data entry considerably, and so would be better suited to your needs.

STANDARD LAYOUT

For touch-typists who intend to use their computer for word processing, keyboard requirements become extremely demanding, going far beyond the obvious need to generate both upper- and lower-case letters. For many years, office-oriented computers have routinely incorporated full-stroke keyboards, IBM "Selectric" style key layout and pressure, sculpted keytops, proper height differential between key rows, et al., to cater to the needs of rapid touch-typists.

Unfortunately, most home computer keyboards seem to have been designed by and for two-finger, hunt-and-peck typists. You can spot these anti-touch-type machines easily because the parentheses symbols will be located over the 8 and 9 (not the 9 and 0), and a plus sign (not the colon) will be over the semicolon.

This arrangement conforms to the layout of the reconditioned teletype machines used by early computer hobbyists, rather than to that of the business-oriented IBM Selectric typewriters, which have been the standard for offices and schools for more than 20 years.

To many people these (and other "minor") deviations may be unimportant, but to the touch-typist they are absolutely critical. The reason lies in what it *means* to be a "touch-typist." Even if you "know" where all the letters on a keyboard are, if you have to think of them each time you type them, you are not really a touch-typist. A true touch-typist is a person whose "muscle memory" is so trained that he types automatically, *without* thinking about the letters. (In my experience, about 30 words-per-minute is about as fast as you can mentally "spell" the words as you type them; the jump from there to 50-60 wpm or more is the jump to real touch-typing.)

An analogy may be useful: a good pianist or violinist does not think where he has to put his fingers as he plays, and

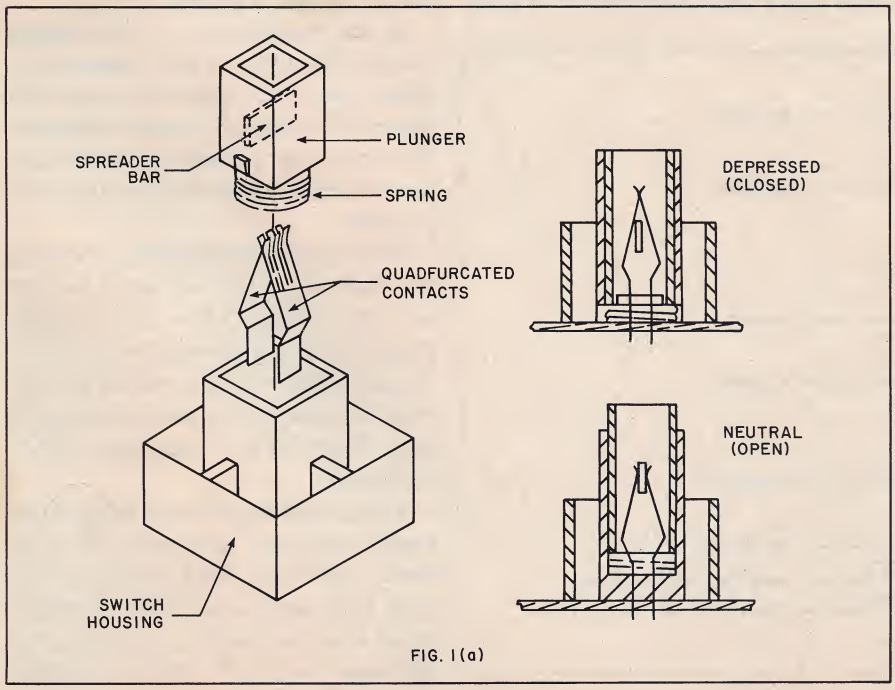


FIG. 1(a)

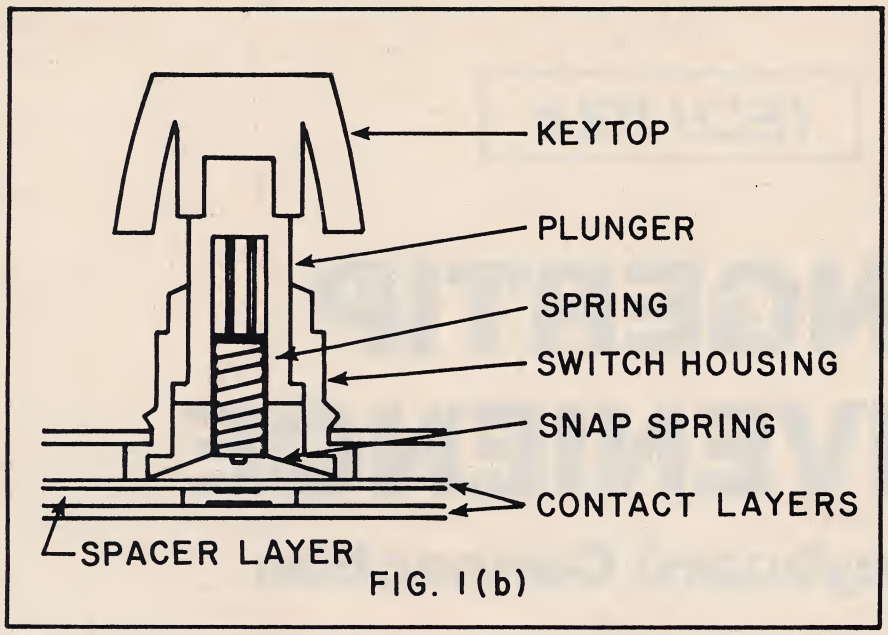


FIG. 1(b)

the same is true of a touch-typist. But if a letter or symbol on one's keyboard is out of its "standard" place, you have to think of the fingering (instead of concentrating exclusively on what you are trying to say) and touch-typing becomes impossible.

If you are a touch-typist, then, beware the salesman who engagingly says you'll "get used to" a keyboard you don't quickly take to; he's really asking you to re-learn to touch-type, which is roughly the equivalent of asking a violinist to take up the viola, as well.

OTHER FACTORS

Many things beside actual key placement affect the suitability of a keyboard for rapid word processing. The kind and length of keystrokes, the size and shape of keytops, et al. obviously will affect the typing quality of the keyboard. Many of these design aspects can better be understood after considering the basics of how the keyboard works.

ELECTRONICALLY SPEAKING

Essentially, a computer keyboard begins as a collection of electrical switches, one for each individual key. Technically, these switches are "momentary contact" (they are "on" only when held down) and "single-circuit" (only one pair of contacts is used per switch). The keyboard switches must be arranged in such a way that the computer can distinguish both if a key is depressed (switch closed) and, if so, which key it is.

While there are half a dozen basic types of switches used in computer equipment today, three are principally employed in most microcomputers you and I might purchase. These are shown in the cross-section drawings of Fig. 1: (a) hard contact; (b) soft contact (Membrane); (c) capacitive key switches.

In the hard contact (Fig. 1a) type switch, two spring-like metal leaves are held apart by a spacer until the keytop is pressed down. The very ends of the leaves, where the actual electrical contact is made, are split into four or five electrically-connected "fingers," so that if a bit of grit blocks contact between one pair of fingers, others will still be there to do the job.

Clearly, this type of switch is limited to a "full-stroke" key, since the spacer must move an appreciable distance to permit the contact. The full stroke, however, does permit both "pre-travel" (the distance pressed down before contact is made) and "post-travel" (the distance one can continue to press down after contact is made before reaching the physical limit of the switch).

Switches with proper pre- and post-travel have been found to be very important for rapid touch-typing. Also note that in this type of design no provision is made for "tactile feedback," that is, a difference in the force levels required for pre- and post-travel.

In the membrane, or soft contact switch (Fig 1b), the two contacts are either etched or deposited onto thin, flexible film layers, which are held apart by a spacer with a hole where the contacts will come together when the key is pressed.

While a full-travel switch is shown in the illustration, you can easily see that by eliminating the vertical spring, plunger, and large keytop and substituting a smaller keytop mounted directly over the snap spring, one can obtain a very short-travel, "calculator-style" keyboard.

This is what a number of inexpensive home computer keyboards do. The short travel and small keytops make such keyboards unsuitable for high-speed word processing, of course, but they may be handy where extremely

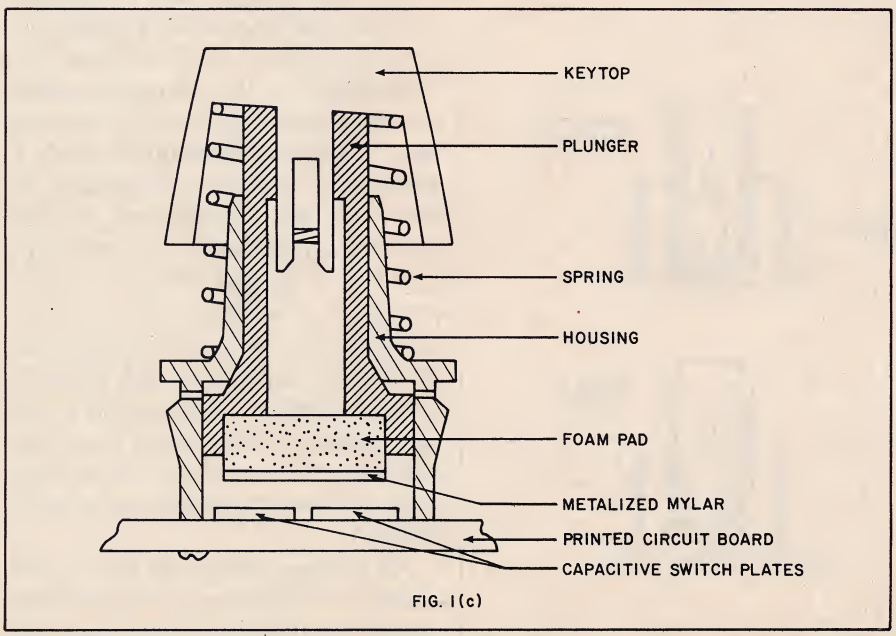


FIG. 1(c)

small (e.g. notebook-size) computers are desired. The snap spring, which operates like a child's toy clicker, provides tactile feedback so you know, despite the short travel, when contact has been made.

Unlike the two previous types, capacitive switches do not actually involve making direct electrical connection between two conductors (contacts). By using suitable sensing devices, one can vary any electrical property (capacitance, inductance, even resistance) in such a way that the detector recognizes a substantial parameter *change* and acts as if an actual contact had been made.

In the switch illustrated in Fig. 1c, when the keytop is pressed a metalized mylar foil is pushed down against the two switch capacitance and triggering the detector circuitry. When the switch is closed, pressing further on the keytop (post-travel) adds the compression of the foam pad to that of the spring, giving the user tactile feedback. Key Tronic keyboards (used in most of the IBM PC "clones" as well as in many other home computers) use this type of switch.

MAKING THE CONNECTION

As described above, each key simply connects (directly or capacitively) a single pair of switch contacts. In this respect, then, there is no difference between pressing an "A" and a "Z". Obviously, however, the microprocessor must distinguish each character from every other.

As I discussed in April's Tech Talk column, the "A" must ultimately generate ASCII code number 65 (41 in hexadecimal notation), and the "Z" must generate 90 (5A in hex). How can the key switches be connected in such a way that each generates a unique code that can be translated into ASCII (or equivalent) values?

The answer to this an "X-Y matrix," shown in Figure 2.

In the matrix shown in Fig. 2, one of the contacts for each switch is wired to one of the X lines, and the other to a Y line. When the switch is pressed, a unique X-Y address is formed. The electronics in the keyboard (sometimes, in inexpensive models, those of the main computer itself) continuously scan the X and the Y lines, detect any switch closure, and translate the address into the appropriate ASCII (or other) code.

A GOOD DESIGN

While this sounds fairly simple, in good keyboard designs a lot more is involved than immediately meets the eye.

For one thing, no matter what the type of switch, when it is initially closed there are a few milliseconds of unstable "contact bounce." Depending on the timing of the scanning of the X and Y lines, this might result in no closure being detected or it could result in the same letter registering more than once.

While it seems to the fast typist that his finger is "down" for only an instant, that instant is very long in computer terms. "Debouncing" is handled by requiring the keypress to be detected a number of times by successive high-speed scans in order to be "verified" and sent on to the CPU (Central Processing Unit, or microprocessor).

Indeed, the relative slowness with which key switch contacts make and break, combined with less than perfect typing rhythm on the part of the user, leads to the problem that more than one key may be depressed at once. Without getting into the circuit details, this can sometimes result in either lost keystrokes (where a second key is depressed and released again before the first is released), or in "phantom" keystrokes (where it falsely appears to the computer that a certain key has been depressed when instead three electrically-related keys have simultaneously been pressed).

Very inexpensive keyboards make no "rollover" provisions to eliminate these keying errors. For single-finger entry, as on a numeric keypad, 2-key rollover may be acceptable if the entry speed is low. Higher-speed entry requires a 3-key rollover circuit, and for rapid touch-typing n-key rollover, requiring sophisticated lockout circuitry, is needed.

DISTANCES CROSSED

Even from this brief discussion it's apparent that much thought (and expense) goes into fashioning a high-speed typist's keyboard. The spacing of the keys (¾ inch center-to-center is standard) is important, and the full length of travel (0.150 inch is about right) should be equally divided between pre- and post-travel. The keytops should be large enough for adult fingers, and they should be slightly "cupped" to avoid slipping off a key slightly mis-hit.

As for the force required, some professional high-speed data entry people like a force as light as 1.5 oz. For most rapid typists 2 oz. is a better choice, and for "oldies" (like me) who are accustomed to the Selectric touch, 2.5 oz. may not be excessive. (Too light a touch can lead to triggering keys unintentionally.)

The key rows should be tiered, and should present a slight angle (8 to 15 degrees, depending on table height) to the horizontal. Above all, all "typewriter" keys (i.e., excluding function keys, cursor keys, control and escape keys,) should all be where they are and the size they are on the IBM Selectric.

Is there such a keyboard? Yes, the DEC VT-100 terminal is one, and the Kaypro is another. So are many of the Key Tronic keyboards. But many of the popular home computers fail very badly by these tests, and the only way to make their makers pay proper attention seems to be through withholding purchase.●

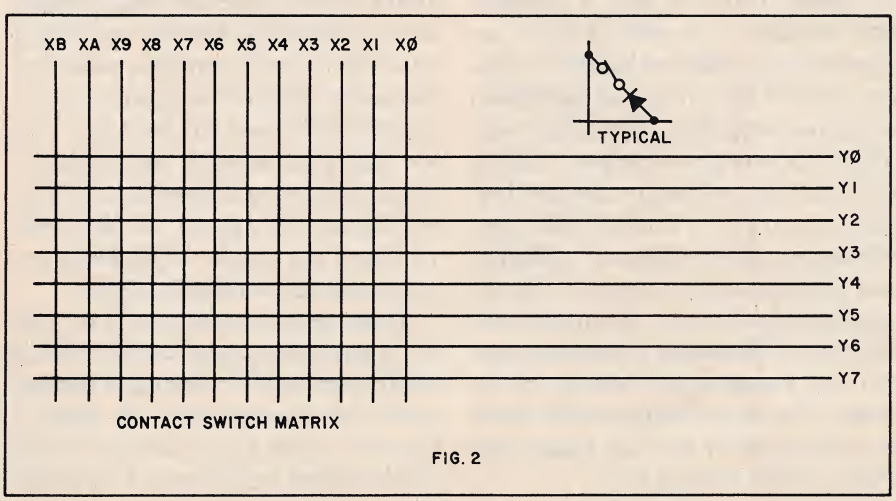


FIG. 2

Spring Software Trends

Computer games continue to expand in scope with everything from text adventures to the more standard arcade fare most of us have become familiar with. This season's latest introductions are no exception to the rule, although a proliferation of standard themes—slide and shoots, maze, or climbing action—still remains as the norm.

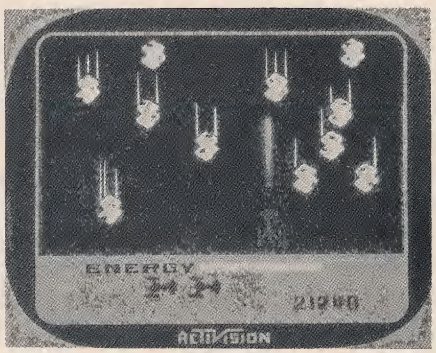
One fact that can be said with certainty is that all the software manufacturers appear committed to bringing out more sophisticated and involving efforts. It's no longer enough to offer a game with three screens which are then repeated if the player completes the sequence. Instead, storylines are becoming better developed and even graphics are showing more 3-dimensional details which only adds to the total entertainment value of the current titles available.

MEGAMANIA

(Activision/Atari, Cartridge)

Not only do the big hits keep coming from Activision, they keep returning, in different versions for different systems. Following the release of their first two adaptations of VCS titles for Atari computers, the folks at Activision have reached back into their collection of golden oldies to revive **Megamania** in a new ROM cartridge version for Atari owners.

Piloting a rocket through the depths of space, you run into a peculiar phenonemon. You are set upon by hostile aliens, who just happen to take the form of such common household objects as steam irons, radial tires, wedding rings, and cheeseburgers. There's only one thing left to do: use your joystick to move your ship left and right, thereby avoiding the enemy's missiles, and hit your action button to fire the missiles that will blast the invaders out of the sky. Meanwhile, keep your eye on the fuel gauge at the bottom of the screen. You must eliminate all the aliens in a wave before the fuel gauge runs down, or risk losing a life.



Each attack wave features one particular adversary. They might progress towards you in a zig-zagging path, or march across the screen while inching down towards the bottom and taking pot-shots at you. Complete a wave, and you are awarded bonus points based on the amount of fuel you have left. You are then given a refill, and are introduced to a new set of adversaries. There are one and two player versions, and you have the option of choosing between regular or guided missiles.

Megamania was one of the first "funny" games for the Atari 2600. In fact, a major portion of its appeal is derived from the incongruency of using a futuristic space ship to knock out the death-dealing ladybugs and ice-cream sandwiches which are falling out of the sky. Take that away and what have you got? A slide-and-shoot game pure and simple. Sure, the graphics in this version are beautiful. Your adversaries are both well detailed and well animated. And the idea does tickle. But in the end, it's a mirthful Space Invaders and, given the power of the Atari computer system, I think we've come to expect more.

Still and all, Megamania is a nice variation on the theme. If you're the type who can't have enough slide-and-shoots, then you can enjoy Megamania as a funny and challenging game. For the rest of us, the appeal may be too limited to make purchasing this cart worthwhile.

—Dan Persons

DINO EGGS

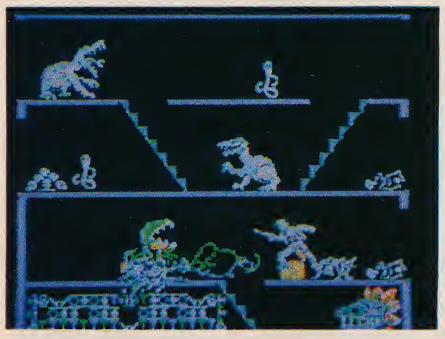
(Micro Fun/Apple II, IIe, Disk)

Finally a climbing/jumping game with a workable plot that doesn't involve saving some dizzy dame from the clutches of a crazed animal. Instead Micro Fun's DINO EGGS for the Apple II family projects the player as Time

Master Tim, a 21st Century time traveler who has accidentally doomed Mesozoic era dinosaurs to extinction by contaminating them with measles.

As a very remorseful Tim, home computerists have to transport as many eggs and baby dinos as possible to the future where they can be saved. Like mothers of any age or description, the Dino Moms naturally try to protect their young from this unknown intruder. These parents really put their foot down when they're upset! A huge leg crashes down onto the cliffside, literally smashing the life out of Tim if he hasn't built a fire to keep Mom at bay, or can't outmaneuver mom's fatal footsteps.

Other natural hazards include proto-snakes and spiders, which unleash a biological time bomb when they contact the gamer's on-screen alter ego. If Tim



doesn't reach the safety of his time warp energy field before the clock runs out, he devolves into a lowly proto-spider, thus losing a life. In addition, any items carried by Tim at the time become poisoned and Tim must start all over, minus another of his initial three lives.

Emphasizing the low scoring designs of the game is the fact that a bonus life is earned at 200 points. Eggs and dinos safely transported earn from 2 to 12 points, while those abandoend or contaminated decrease the score by anywhere from 1 to 10 points. Successfully clearing the cliffside of eggs and dinos garners gamers a 10 point bonus in levels 0-8, while level 9 is worth a whopping 50 points.

The audio effects on the Apple are good, being just slightly below the quality of the C-64 version. The visuals are breathtaking, almost as if they've been done in day-glo paints. The animation is very fluid and natural, with challenging screen variations.

The play mechanics are excellent, with Tim being easy to handle and the concept itself being easy to follow.

Baby Allosaurs, Tyrannosaurs, and Stegosaurs are all individually recognizable. Beyond that, they act like lost little kittens. They really are adorable, even from the moment they hatch! *—Ted Salamone*

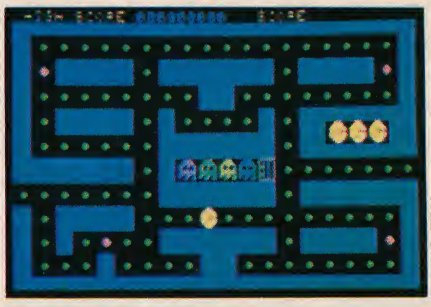
SNAKMAN

(Microdigital/Commodore 64 Disk)

You would think by now that most people have had enough of *Pac Man* and all the other variations on that theme. Well, Microdigital doesn't agree. They seem to have done okay with the Vic 20-version (which came out at the tail end of the so-called Pac-Mania), and are now trying to sell an improved Commodore 64 version.

Snakman, I'm sorry to say, isn't much of a game if you're a true *Pac Man* freak. First, the playfield is much less intricate than either *Pac Man* or *Ms. Pac Man*. Second, although the idea is similar: (move your chomper around the maze eating dots, all the while being chased by variously colored ghosts, which if you eat a specific pellet, are vulnerable and you can eat them); in this version, game play is surprisingly unchallenging.

The maze is the same from round to round, usually the ghosts are easily avoided, and big points can be racked up by staying near the area where chomped ghosts emerge. If you eat a ghost or two and get near that door, you can keep chomping and returning them over and over. In the center of a U-



shaped area, various prizes are occasionally displayed. Eating them turns your chomper into something like *Super Pac Man*. This area is usually safe, and worth beaucoup points if you just park yourself in there until it doesn't look safe anymore.

Microdigital has come up with some good games. Although I wish I could say a lot of nice things about Snakman, it wouldn't be honest to do so.

—Mark Brownstein

VIDEO VEGAS

(Funware/TI 99/4A Cartridge)

Video Vegas is a pleasant diversion, promising a couple hours of enjoyment. . . maybe. What you get is a slot machine—no more, no less. In order to cause the three tumblers to spin, you enter a bet, $1, $2, or $3. If you lose, that amount is deducted from your score. If you win, the amount (or double or triple) shown on the right side of the machine is added to your score.

In order to continue betting one amount, just hit any key but 1, 2, or 3. Although the graphics are good, and the thing sounds something like a slot machine, there doesn't seem to be any room for skill to develop, or anything but chance at play. Therefore, you can set the game on demo mode (but can't get out of that mode) and probably have just as much fun as you do by typing in a bet. (The odds seem to be better than Vegas—I never seem able to drop below $70 or so, from an initial $100 pot).

For kids, the game is great. All they have to do is punch a key, and voila, instant gratification. If you are over, say, seven years old, the game will probably become boring very quickly. But, do you really want to introduce your child to gambling—especially since it's biased and you can't seem to lose?—*M.B.*

DROL

(Broderbund/Apple II, IIe)

Enter at your own risk! Apple owners are forewarned about the dreamworld of **DROL** which is ruled by an evil witch doctor who conjures up some of the most bizarre game inhabitants ever.

Game players armed with an unlimited supply of luminous reality pellets attempt to rescue a little girl and

her rocket-pack-equipped pet lizard in a first mission.

Next a small boy and his outfitted crocodile (whatever happened to normal pets?) have to be saved. Finally players must free the children's mom. From there it becomes a repetitive cycle at more advanced levels of difficulty. Sounds like an average day's work, right?

Using either the keyboard or joystick controls, players guide their on-screen surrogate against numerous foes including hopping scorpions, flying turkeys, monsters, vicious serpents, and floating magnets.

There's more!—after all what's a rescue without a lot of hazards? Myriad flying weapons such as hatchets, spears, knives, and daggers drift or flash by at various velocities in wolfpacks or on an individual basis. The witch doctor, and equally invulnerable green vacuum cleaners, manage to put in appearances from time to time.

Thank goodness Broderbund doesn't have them all show up simultaneously. DROL is challenging enough as it is, anything more would make it frustrating, if not downright impossible! While it's rules are easy to comprehend, DROL's play action is difficult to master.

The packaging promises humor, action, and suspense. The action's there in spades. Actually if it wasn't for the car-

toon humor, DROL would be an exercise in masochistic pleasure. As for the suspense, that must come from desperately wanting to see the victory cartoon do its thing.

Game players must be on their toes at all times because the creatures reverse directions to get the video persona as he flies through the trap doors between the four floors of this ancient civilization's ruins. The witch doctor passes from floor to floor by melting into them, and flying turkeys and monsters are stopped only after absorbing multiple hits.

A radar screen across the top portion of the display allows arcaders to track most of the baddies, but none of the people (or pets) to be rescued. These people really are in a trance because they don't help themselves one bit!

Fluid action, exceptional attention to overall detail, excellent bit mapped graphics, and a sly, wry sense of humor make DROL an interesting game capable of providing many hours of entertainment for players tired of the maze, adventure, or shoot-em-up formats.

—T.S.

CRYPT OF MEDEA

(Sir-Tech/Apple II, IIe, III/48K disk, DOS 3.3)

A fierce storm rages overhead, forcing you to seek the shelter of a nearby mausoleum. While inside, the gate swings shut, trapping you within the terrifying **Crypt of Medea**

So begins Sir-Tech's combination text/high resolution graphics adventure game for the Apple II and III line of computers.

Crypt of Medea is not for the faint-hearted, because there are some very gruesome graphics and highly descriptive text passages along the way.

(Just to keep things from getting too macabre, the text and musical portions add a bit of subtle wit and humor to offset the grislier graphics and prose.)

Displayed from a first-person perspective, the multi-hued, simulated 3-D visuals lend a great deal of realism and excitement to the sheer terror of being entombed.

However, these exceptionally fine graphics do not detract from the complex, highly interactive nature of the text portion. Full sentence commands (instead of just verb-noun statements) are accepted by this machine language program, allowing for a more natural input from armchair adventurers.

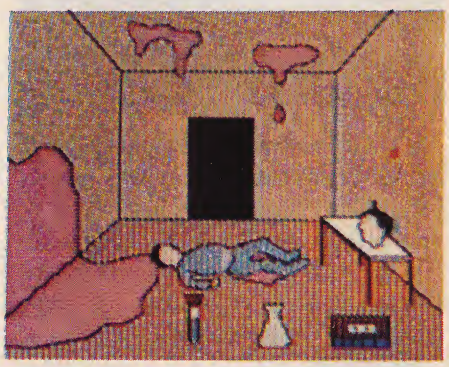
Crypt makes good use of music and general sound effects to complement the vivid visuals and involving text.

Sound is an integral part of some scenarios, while numerous musical interludes add to the psychological impact of making good or bad (often fatal) decisions. Use of a Mockingboard even makes it possible for Medea to "converse" with the quester.

Like most games of this type, mapping is practically essential for continued longevity and eventual success. Noting movements, their results, and the cast of characters and clues encountered can make the difference between a narrow escape and certain doom. (This reviewer used the save game option profusely to negate the damage caused by any rash, or ill-advised choices. It is also helpful for restarting at a point before an unalterable act has been committed out of sequence, thereby creating a way out of an otherwise hopeless situation.)

The 14 page manual outlines the keyboard implemented options as well as a sample play format which takes adventurers through the first three rooms of the mausoleum. It also provides some basic mapping advice for neophytes.

Additionally, a list of key verbs is included, learning the usable nouns being part of the challenge. Because of the numerous chambers, the multitude of usable articles, and the various interactive possibilities; an encoded hint sheet is part of the package.



Going one step further, a cross referenced answer sheet is provided. Since this page explains all the moves needed to go through Crypt in nothing flat, it makes for a dull time if used extensively.

While there's no time limit to be concerned about, there are plenty of traps and menacing creatures to be found. Only a lot of trial and error coupled with smart thinking brings the freedom so feverishly craved.

If you're looking for a mind boggling adventure that'll give you the willies, Crypt is just the ticket.

Oh no, my candle's gone out! What was that up ahead, lurking in the shadows?

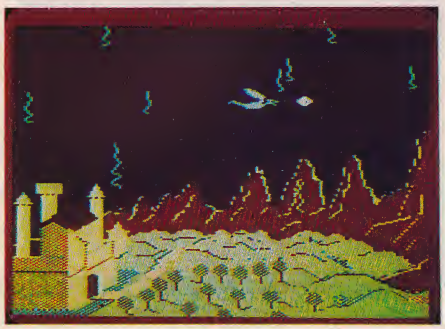
—T.S.

THE QUEST

(Penguin/Apple II micros)

Penguin's **The Quest** for Apple II home computers is a lavishly portrayed graphic adventure capable of understanding multiple sentence commands so that adventurers can express themselves fully if they so desire.

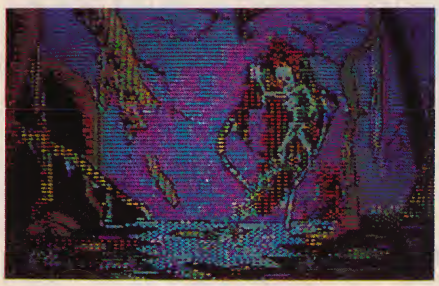
On the other hand, certain commands can be abbreviated as single letters to speed things along. Mainly, these are the directional inputs, including up and down statements.



Proof positive of the wry humor injected into the scenario is the Flee Screaming Hysterically command used when all hope has been abandoned.

That's not saying The Quest is a laugh a minute; it's anything but. The Grim Reaper lurks practically everywhere in this parched land. (That's the first, last, and only hint; players are on their own from here out!)

As King Galt's newest (and highly recommended) advisor, game players join forces with the gruff champion



Gorn on a long and perilous journey to the Southwest Province to rid it of a particularly vile dragon.

Along the way many obstacles and hazards await. They are all rendered in a rainbow of brilliant graphic detail that takes the breath away.

Savvy and some luck are needed to achieve the goal because Gorn is a stubborn fighter not easily persuaded to change his course of action. This realistic presentation of human characteristics adds greatly to the excitement. No one ever said advisor to the king would be easy!

The Quest does not provide much in the way of key words, hints, or clues. Learning to converse properly with the Apple is an experience in its own right. Due to this and the complexity of the tale itself, only experienced adventurers need apply. Novices and intermediates should work their way up to this one!

There's challenge aplenty awaiting the soul brave enough to tackle The Quest. Even though mentioned before, the visuals are so stunning they're worth talking about one more time. To see for yourself, just take a gander at the screen shot pictured here.

—T. S.

CRISIS MOUNTAIN

(Creative Software/Commodore 64)

Crisis Mountain for the Commodore 64 cops the dubious honor of being a major disappointment.

Basically a warmed over Miner 2049'er with less exciting game play, CM is an underground scale and jump—without ladders, vines, or other vertical avenues of movement.

Instead arcaders maneuver their on-screen persona across, over, up and down brilliantly colored slopes, plateaus, and boiling lava pits. There are tight quarters requiring crawling on all fours. This exemplifies the typical fault with the whole game; too slow a pace!

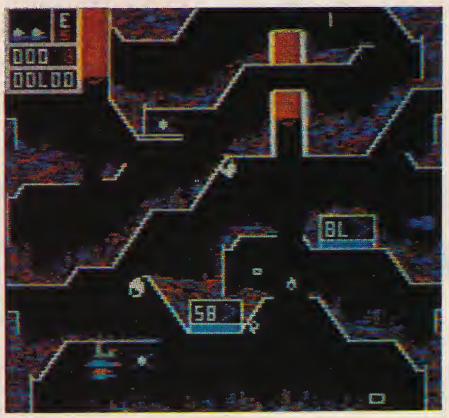
Even when the adventurer is jumping courtesy of the fire button, he can barely get out of his own way; never mind dodge the numerous smart boulders and spewing lava.

Supposedly on a mission to defuse bombs left behind by terrorists in a semi-active volcano, gamers must precisely plot the correct jumping off point or it's curtains for any of the three game lives initially available. (Others are earned at 10,000, 30,000, and 50,000 points.)

Trying to determine these exact locations while dodging debris becomes more important than collecting the various treasures strewn about.

Players who can endure long enough to grab all the prizes advance to the Nova mode in which they must clear randomly appearing novas for additional points. First one appears worth 1,000 points, then two for 2,000 each; up to five for 5 grand apiece. Each value level must be completely cleared before the next begins. Considering the pace of our apparent sleepwalker, the whole concept becomes an exercise in futility, quickly producing high levels of frustration.

Somewhere along the line bombs are to be dug up. I never found any! This is supposedly accomplished by hand, or with the aid of a shovel said to be four times faster than the finger method.



Good luck trying to keep that pesky shovel in your grasp!

This one man bomb squad also has strength characteristics measured on a scale of 0 to 3 points. Zero equals worm bait, three is perfectly fit. Contact with any boulder(s) reduces his strength level, rendering him even more ineffective. At times, the blighter can't even stand!

This business with the strength points is a confused attempt to bring adventure game aspects to a straight arcade style format. It fits like a square peg in a round hole, just making matters worse.

Creative Software's Crisis Mountain is a slickly produced cartridge sporting vivid visuals, lousy gameplay, and irritating music. Beauty really is, in this case, only skin deep!

—T. S.

PAC-MAN

(Atarisoft/TI 99/4A, Cartridge)

Whoever designed this version of **Pac-Man** certainly did his homework. The playfield looks a lot like the arcade version titled on its side, the ghosts are the stars of this show, with pupils and whites of the eyes. Pac-Man doesn't look

too bad, either. As the ghosts change direction, their pupils also change direction. With increasing levels of difficulty, the game can quickly challenge all but the very best players.

There are two minor deficiences—the game doesn't *quite* sound like Pac-Man—close, but not on the money. Also, parts of the ghosts disappear when you get too many on the same line, or in the tunnels. But aside from these minor distractions, the TI 99/4A version of this once popular game is quite good.

Now, if only the controllers were better....

—M.B.

ROBOTRON: 2084

(Atarisoft/Apple II family)

Attention! Persons under treatment for paranoia or a heart condition should *not*, repeat, should *not* play this game!

The Surgeon General should have such a label affixed to Atarisoft's **Robotron: 2084** for the Apple II micros because it's a real adrenalin pumper.

The basic scenario goes like this: as a genetic mutant possessing superhuman strength you must save the last family of humans from the dastardly clutches of the Robotrons, man-made mechanical marvels gone mad.

They are tough—so tough some of them are invulnerable! They are also practically limitless in number. Certain robotrons even exhibit a superior version of the bee characteristic known as swarming. Relentless pursuers, they don't give up until destroyed.

Ground Roving Unit Network Terminator robots (GRUNTs) pursue the gamer's on-screen alter ego while Hulk, Brain, and other types appear in the later screens to complicate an already bad situation.

Touching the family members saves them, earning a bonus that ranges from one to five thousand points depending upon how many are saved per wave.

Players have a choice of controls including keyboard, joystick, joystick/keyboard hybrid, and paddles. Stick with the straight joystick setup.

No comparisons to the original arcade game are needed because this version stands on its own. The graphics and sound effects pale beside the sensational play action.

Survival depends upon constant movement, quick reactions, and a withering hail of fire. It is a fast paced, relentless free for all. Robotron is a gem of the highest quality.

—T.S.

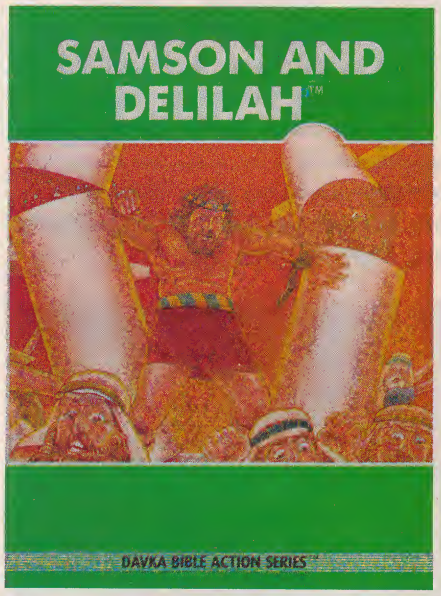
SAMSON & DELILAH

(Davka/Commodore 64)

According to the packaging, The Software Group created **Samson & Delilah** for Davka's Bible Action Series. Players use a joystick to control Samson so he can reach the foundation pillars of the Philistine Temple. At this point they re-create the famous scene of falling marble and rending flesh that no doubt accompanied the original collapse.

The list of game options is very impressive sounding; one or two player, selectable action speeds, blinking guards, Delilah's fiery scissors, night, and elite imperial guards.

Besides jumping over the guards,



Delilah, and a lion, Samson can acquire his trusty jawbone of an ass for smartly smiting guards. Points are awarded for every conceivable action Samson is capable of performing. As incentive to keep going ever lower, points are subtracted for backtracking to an upper level.

The game is won when the toppling pillars bring the Temple down. The reward is a bonus attempt to do the same thing all over again!

I doubt if anyone would want to subject themselves to such a fate, for the truth of the matter is that this game is very poorly done. Keeping in mind that it's for the 64K Commodore 64, the graphics are positively simplistic. Most Atari 2600 (4K RAM) owners would look at it in disdain. E.T. has better graphics!

Joystick control is horrendous, and the grandiose sounding options menu calls up some really crude play variations.

S&D chastizes poor players by telling them their spirit is sleeping. Well since this offering has no redeeming values whatsoever, its spirit must be dead.

—T.S.

LABYRINTH OF THE CREATOR

(Victory/Commodore 64)

The Creator is back, along with more

of his foul following. This time he's built a fortress of 256 rooms populated by sprites of all shapes and colors, some deadly, others worth bonus points.

Commodore 64 owners use a joystick to control a large recognizer-type creature in Victory's final chapter against the evil one.

Starting with ten game lives, you have to traverse the hostile territory destroying, capturing, or evading crisp, clearly defined sprites depicting strange alien forms, boats, keys, skulls, candles, and strawberries.

A green Viking head roams about making life more difficult. Reentering a chamber of enemies before it's been completely cleared out means facing the entire population of that room again. Backtracking can be tough!

Besides the aforementioned forms, the rooms also contain directional prompts, cryptic messages, titles of Victory's other games, and disorienting time warps. To help players keep track

of their whereabouts, the "P" key redisplays the fortress overview.

This is essential, since certain rooms, (marked by letters and a brief description at game start) must be entered in the proper sequence for there to be any chance of success.

Mostly a shootout, Labyrinth presents a good challenge. Ominous audio effects, a very detailed visual presentation, and some gripping action are its strong points.

On the downside, the overview map appears to have been generated with the Commodore 64 keyboard graphics set, and the background detail is a nonexistent black wasteland.

CREATOR'S REVENGE

(Victory/Commodore 64)

Creator's Revenge is the second installment in Victory's Earth Warrior series for the C-64. In it, computerists battle an army of indestructible robots before it detroys an earth city; thereby sending out a horde of vengeful, destruction-minded mutants.

Basically a slide and shoot, gamers control a recognizer-like figure that clambers into a multicolored, highly detailed sprite tank to wage pitched battle against hostile, equally well drawn sprites configured as insects and armed robots.

The treasures are an interesting

assortment, ranging from some unidentifiable blobs to a great rendition of the American flag. Once past this segment, the background changes from flowers and mushrooms to small nuclear devices.

In this phase a neutron bomb comes down the screen amidst the hostile forces. Players must destroy it to prevent the wholesale slaughter of their city. Failure to do so produces another screen in which the device is dropped onto the rather poorly portrayed city. After this the mutants (more sprites) come out in force. Waste them all and it's still possible to defeat the Creator!

Of course, good tank commanders can nail the neutron bomb as it falls in the first screen, pitting them against the Creator almost immediately. Blast him into oblivion, and it's on to the next level in which the antagonists are quicker and more numerous.

Though based on a well worn theme, Creator's Revenge is an interesting piece with good overall visual stimulation and excellent animation. Play action is very fluid, and the sound effects are more than adequate.

METAMORPHOSIS

(Victory/Commodore 64)

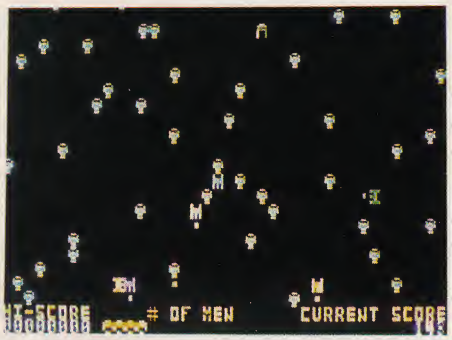
Victory's **Metamorphosis** for the Commodore 64 is the first part of an action packed trilogy pitting computerists against the Creator and his evil minions.

"Intense" best describes Meta. The action is unrelenting, the number of foes incalculable, and the pace mind numbing.

As a TRON-like recognizer, gamers must penetrate the robot city and destroy the Creator. Depressing the joystick button initiates a spray of firepower in the direction of travel.

The adventure opens with the player being surrounded by hostile aliens rapidly building walls in their wake. Without touching the aliens (deadly!), gamers must escape through the gate at the top of the screen before the time expires. This, and all other screens, are begun anew if not beaten, unless there are no remaining game lives. Death is a particularly vivid kaleidescopic explosion radiating centrally from the point of destruction.

The second screen, entitled the Hatchery, swarms with a veritable host of hostile tanks and robots guarding the Cyglorx eggs.



Passing this baptism of fire lands players in the realm of the Elders. Here quicker and more powerful foes attempt to destroy you.

In the final encounter with the head honcho himself, the robots are indestructable. Any contact is finito!

Except for the first screen, all the creatures home in on the player's alter ego. Rapid fire capability makes it a tad easier to deal with the hordes, while eerie music and unusual graphics add to the uneasy feeling of having entered a totally hostile environment.

Metamorphosis really transports gamers to the field of battle, it's that involving! —*T.S.* ●

INTO THE FRAY

Adventure Games— What Are They?

By MAEBYN MILES

Dictionaries define the word "adventure" as an undertaking of a hazardous nature; an unusual experience or course of events marked by excitement and suspense. This word has another connotation when capitalized and italicized, however. *Adventure* is the name of the epic treasure hunt tale that became a classic in its unabridged mainframe form during the mid-1970s and ultimately fathered the succeeding explosion of more condensed interactive fiction for micro-computers—the popular art form now known as the adventure game.

Authors of the more recent adventure games are, if anything, even more inventive, cunning, and diabolical souls than those Stanford and Cambridge computer researchers who created the original *Adventure.* They may blast you off into uncharted galaxies, plunge you down into the depths of the earth, or spin you around the globe to some exotic locale—real or imaginary. They may lock you in a time machine set for fast forward, reverse, or leave you in the present.

Whatever their choice of place and time, of this you can be certain: they will challenge you to experience the thrill of victory, the agony of defeat in a role of discovering, solving, escaping, or rescuing of one sort or another.

Some entice you into the tangled webs they weave with visual carrots: colorful high resolution graphics. Others rely solely on words and the imagery their prose conjures up in your mind to ensnare you. But once you're trapped under the spell they cast (with or without pictures), all programmer/novelists feel free to alternately entertain and taunt you at will, while you strive to best them. Not just for hours or days, but often for weeks. Even months, sometimes.

Obviously, then, superior hand-eye coordination and lightning fast reflexes count for naught. An unbridled imagination, a sharp eye for infinitesimal details, and plain old dogged determination, on the other hand, serve you well. So do copious supplies of paper for map making and note taking.

Player aids often, and no doubt begrudgingly, incorporated into adventure games can also prove helpful, indeed. For example, many are programmed to remember your last few commands plus the responses they triggered and obligingly display same on the screen when you press the return key. You'll find, too, that virtually all allow you to "hold your position" on tape or disk when you need to temporarily break off the action and to resume play again at your convenience.

When what you can and can't do depends on whether or not you have the right "tool" for the task, adventure games customarily provide another aid: an on-screen inventory of your current possessions. I learned the value of this one the hard way! Calling for that list at the start of a game and periodically thereafter can save you **h-o-u-r-s** of time and oft-times your very adventure life.

If conventional novels packed with excitement, suspense, and surprises don't do much for you, these unconventional literary works probably won't do much for you either. But if reading a gripping hard copy yarn frequently has you burning the midnight oil to see how it all unravels, welcome to the club. You are definitely a potential "adventure game person." Matching wits and moves with the masterful creators of made-for-computer fiction will surely compel you, too, to keep your monitor screen glowing far into many a night.

The adventure games singled out for special mention, below, are but a few examples of the numerous such software titles available for popular computer brands. (*EHC* will take a look at some offerings by Infocom and Adventure International, two other giants in the adventure game field, another time.) Be aware, as well, that the reviews are intended to merely give you the flavor of the games. I purposely didn't drop any really substantive clues in them for two reasons. Their talented, mildly insane authors would hate me if I did. And so would you. . . eventually.

Those games were reviewed in their Commodore 64 versions although they may also be available in other formats.

WIZARD AND THE PRINCESS
Sierra On-Line

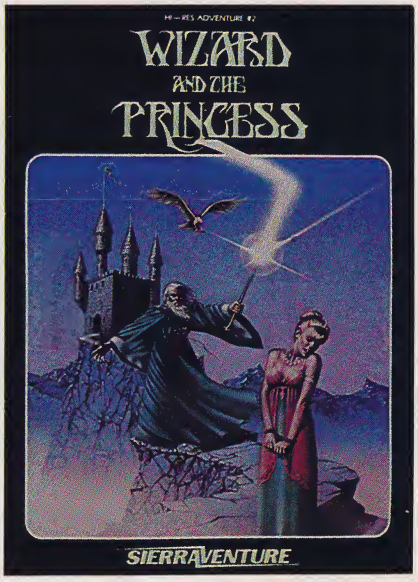
As this computer fairy tale begins, you find yourself in the make-believe village of Serenia looking up a street lined with buildings reminiscent of the middle ages. It is supposed to have a "they lived happily ever after" ending with your wresting the fair Princess Priscilla from the clutches of Harlin the Malevolent, evil wearer of wizardry, jailer of her far away castle prison. You can't count on it, though.

Only once in a time beyond history did a wanderer succeed in freeing Harlin's reluctant house guest. The enraged sorcerer used all the magic he could muster to recapture her, then invoke those same occult powers to prevent anyone from becoming the second wanderer to rescue the castle-bound princess. It's wise to take stock of your meager possessions before forsaking the safety of Serenia and striking out on your perilous journey through the surrounding desert and beyond. Although you have just a flask of water, a loaf of bread, a blanket, and a knife, at the moment, stay on the lookout. Quite often you can gather additional useful things along your way with a "get____" command. Don't expect to add a thing to your arsenal of wizard fighting weaponry with a "find____" command, however, The bewhiskered, beady eyed one is too wise to fall for that ploy.

Take it from one who's been there, you can (and should) map every step you take, note everything you see and do, check out every direction and still

One more tip. Typing in patently wrong commands on purpose is normally a total waste of an adventurer's time. But when you have *Wizard and the Princess* in your disk drive it isn't. Ask yourself, "If I were a cunning old conjurer of spells, a master of illusions and disguises, what would I do to triumph over a mortal bent on rescuing the fair Princess Priscilla?" It does help—usually.

get stymied in this game. When that happens, try thinking like a wily wizard.



I discovered this added dimension by accident very early on. With any luck at all, so will you.

MISSION ASTEROID
Sierra On-Line

"At this very moment, a huge asteroid is just seven hours away from a collision with the Earth. That's all the time you have to navigate your spaceship to the asteroid and destroy it.

If you fail, the whole planet will be blown to smithereens!"

This is the critical situation, the assignment, and the consequences of failure as explained to you by your Commander, Horatio Q. Kumquat. He expresses complete confidence in you despite your total lack of experience maneuvering a billion dollar spaceship through space or even finding your way around Mission Control. Then, after the briefest of briefings, the good Commander drops you off at Mission Control's doorstep.

Graphics play a vital role in Mission Control. You (and we) are doomed unless you check out every little detail in all of the game's 100-plus pictures. Only one exception comes to mind, the first picture you see when you boot the disk. Focus your attention on the door; forget about the windows flanking the entrance. Mission Control is a top secret facility and "the windows are boarded up for security reasons."

Note the above quote. This game lets the computer talk to you in sentences complete with adjectives, prepositions, etc. But it doesn't afford you the same luxury.

You must make your wishes known with one-or two-word commands. Thus, it takes two separate commands to go through a closed door: "open door" and "go door." You need only type one letter if specifying a direction:

N for North, S for South, etc.

Once through Mission Control's entrance and past the secretary (a feat that took me no less than three one-hour sessions to accomplish), you definitely need to map and annotate the course(s) you take. The facility you find yourself in is a sprawling labyrinth of corridors, tunnels, and dead-end hallways punctuated with ever-so-many doors leading to as many rooms for you to explore. And what with the doomsday clock ticking, ticking, ticking, losing your bearings and suffering lapses of memory puts you, and all of us, in BIG trouble.

Talking to the wrong people in Mission Control is extremely risky. You court disaster, too, if you fail to anticipate and appropriate everything you'll need "out there" prior to blast off. Ken and Roberta Williams wrote no orbiting Sears & Roebuck type space stations into their absorbing *Mission Asteroid*!

Sierra On-Line experts guesstimate that you can successfully complete your dangerous top secret mission and save the world in about three weeks. Oh what

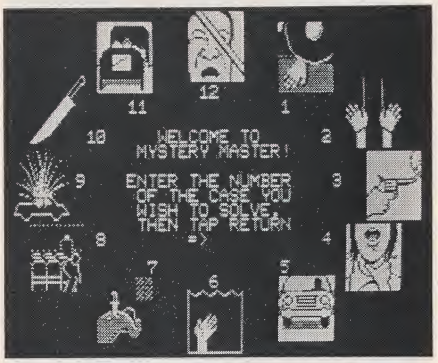
optomists they be! Given my progress thus far, it may take me more like three months.

If I get blown up one more time, ⁹#$%¢&*.*

MURDER BY THE DOZEN
CBS Software

This game delivers exactly what the title promises: 12 murders to investigate and solve with all possible dispatch. Since each murder is a separate case, CBS Software actually gives you 12 adventures on one disk. So I guess you'd have to say murders, too, are cheaper by the dozen.

MBTD differs markedly from the two adventures above. Words, almost exclusively set the scenes and chronicle



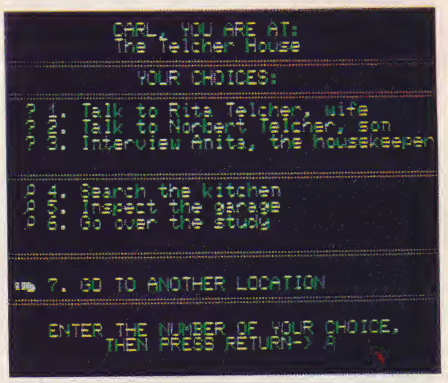
the action. The only hard copy map you need is printed on the Mystery Master Worksheets included in the software package. And you can work alone or challenge up to three other gumshoes to conduct simultaneous investigations of the crime and gather enough evidence to try to nail the murderer before you do. Built-in game clocks total up individual elapsed times; the *Solutions* books confirms whether or not the evidence cited is sufficient to convict the suspect named.

You hear the strains of *Dragnet's* dum ta dum dum theme when you boot the disk. Shortly thereafter, a clock face of numerals and pictograms appear on the screen. They are the case numbers and identifiers assigned to the various grizzly case titles listed on page 3 of your *Detective Manual.*

These bizarre unsolved murders that have the city of Metropolis in such a panic do not appear in degree-of-difficulty order. "Case #1—Otto Telcher, industrialist, found run down in parking lot" is as knotty as "Case #11—Leonora Tibbet, 82 year old socialite, beaten to death with hospital bedpan", or any other one for that matter. The general *modus operandi,* the game's and yours, doesn't vary from case to case either even though the names, places and circumstances you deal with clearly do.

Immediately after typing in your chosen murder number, the phone rings in the Police Department's Homicide Squad room and the Case History (known facts) along with the requirements for solving it pop up on your screen. The Crime Computer subsequently tells you where you are and what actions you can take. How you proceed in tracking down the doer of the dastardly deed is then entirely up to you.

Every case requires plenty of leg work and head work. You must also make good use of your Mystery Master Worksheet as you glean information from the people, places, and things at your disposal to close the file on any of them in something close to the


CARL, YOU ARE AT:
The Telcher House
YOUR CHOICES:
? 1. Talk to Rita Telcher, wife
? 2. Talk to Norbert Telcher, son
? 3. Interview Anita, the housekeeper
? 4. Search the kitchen
? 5. Inspect the garage
? 6. Go over the study
7. GO TO ANOTHER LOCATION
ENTER THE NUMBER OF YOUR CHOICE,
THEN PRESS RETURN-> 3

minimum 20 minutes. In short, this game demands speed, accuracy, and thoroughness. It's these three factors that largely determine whether you win or lose in a competitive solving session and whether your computer taskmaster ultimately awards you a "World Class Detective" rating or one more nearly approaching that of an Inspector Clouseau.

If you have an ounce of detective blood coursing through your veins, *Murder By The Dozen* provides just the sort of sleuthing exercise you'd thoroughly enjoy. ●

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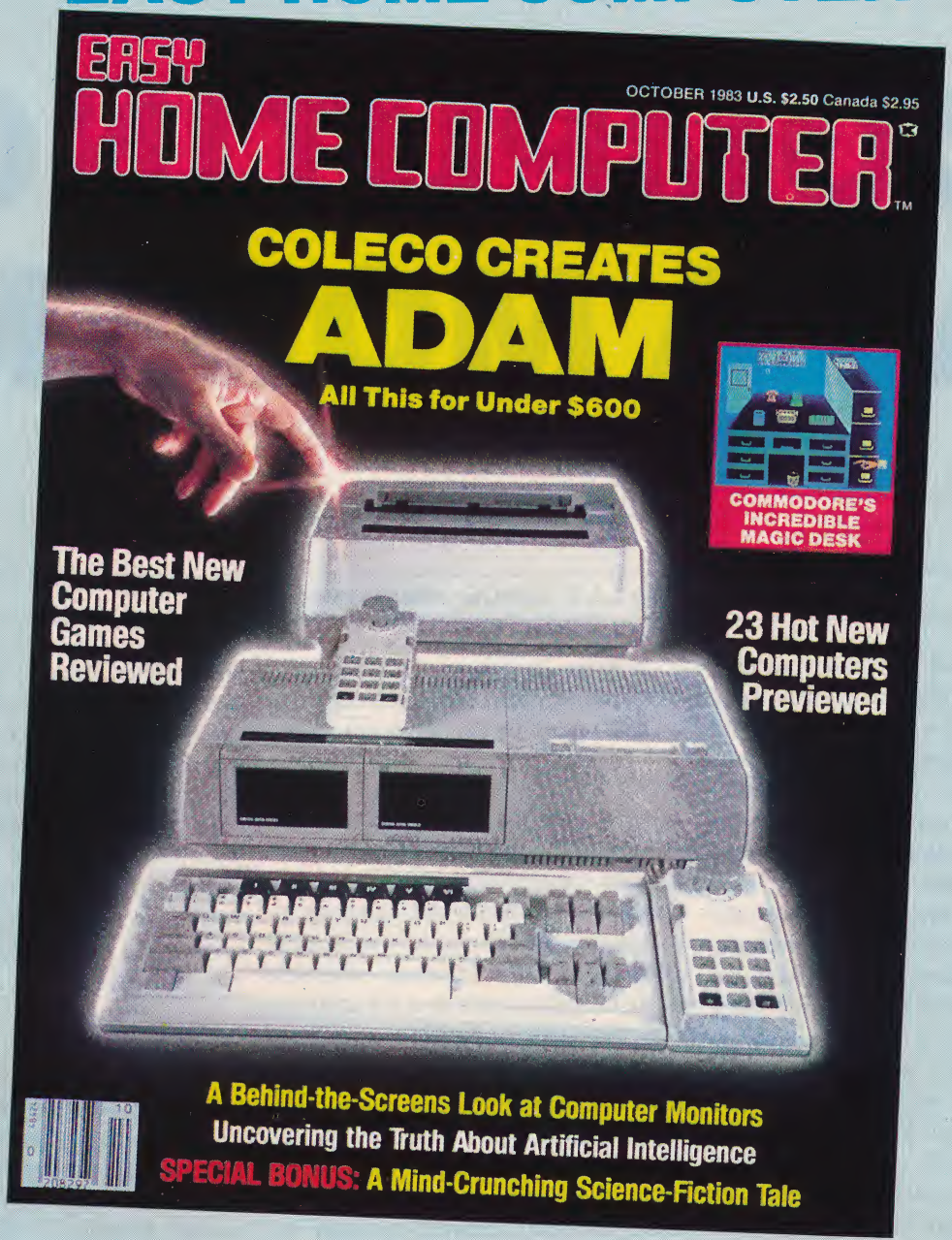
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PERIPHERAL VISIONS

COMPUTING A LA MODEM

By LAWRENCE GREENBERG

Now that you have your own personal computer and you're figuring home finances, playing challenging games, and writing the Great American Novel, you've also started to think about accessing information from outside your home.

You want to plug your phone into your computer so you can receive news, stock market figures, information from specialized data bases (there are more and more of these every month), or maybe just some interesting recipes from friends of yours with their own computers. Or you might want to send mail electronically to your office or friends, transmit business messages, or even transfer entire files. In order to do any of these things, you'll have to get a modem and the communications software to go with it. The question is—what modem should you get?

FOUR BASIC QUESTIONS

The answer to that question really depends on the answers to four other basic questions:

1. What kind of computer system do you want to have?
2. What communications features do you want?
3. What do you want the communications capability for?
4. How much do you want to spend?

Let's take the first question first. Although the predominating trend in modem construction today is to produce an instrument which can hook into any personal computer—as long as you have an RS232 interface—there are some manufacturers who are tailoring their products to specific systems.

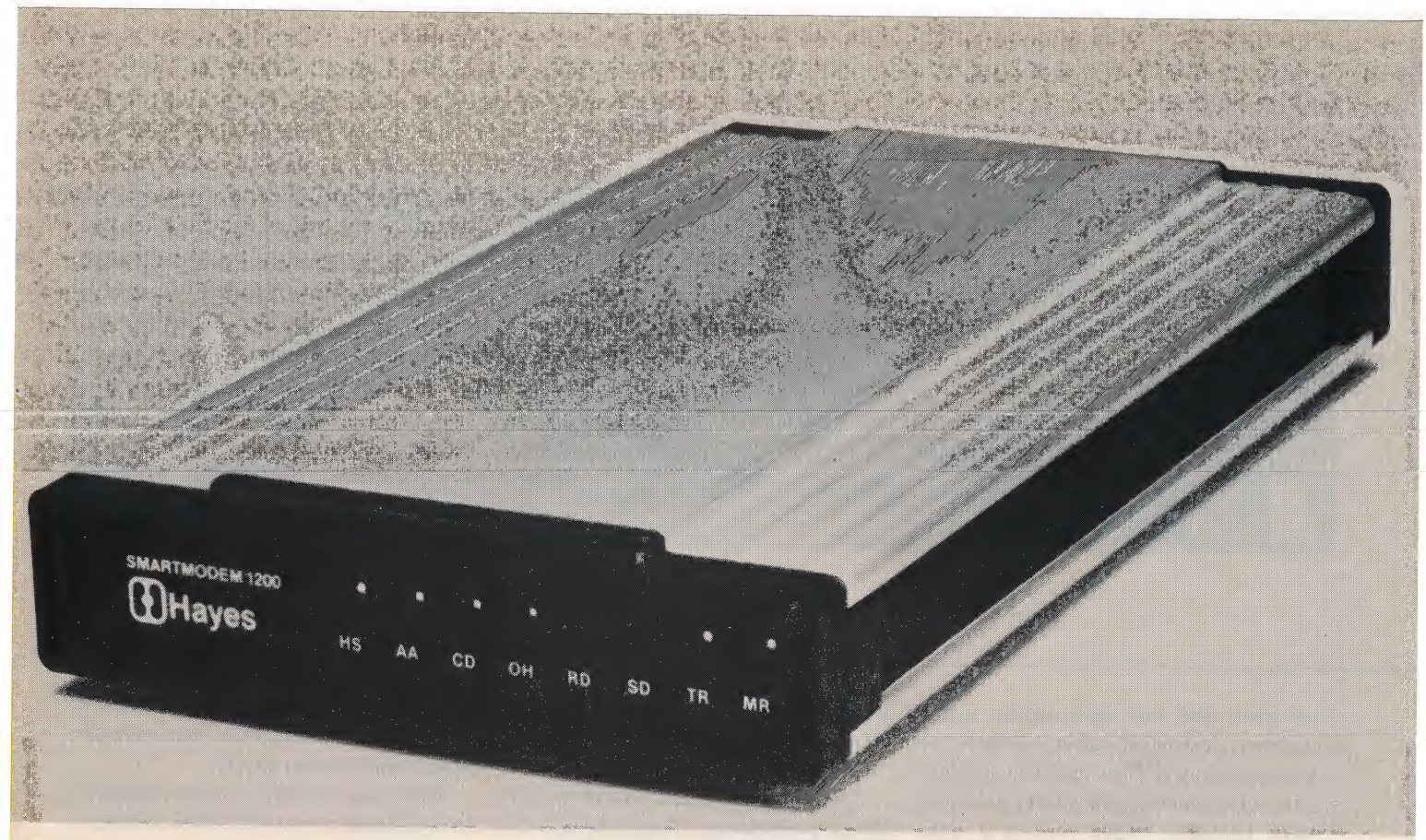
Besides computer vendors who produce their own communications hardware (Atari, Commodore, Radio Shack), firms like Hayes, Ven-Tel, Intelligent Technologies, and Rixon all have modems geared towards individual systems—mostly the IBM PC. Most manufacturers seem interested in providing a unit which you can hook up to any personal computer. The RS 232-C is a serial interface device—usually a printed circuit board (with connecting plug) that fits into one of your computer's internal expansion slots. You'll probably have to buy one to use just about any modem, unless you have a Commodore 64, which has a built-in RS-232-C port.

Basically, the serial interface converts information from your computer into a single signal stream which the modem can transmit easily along telephone lines. Check to see that your system has a serial interface card. If not, you'll have to buy one. You'll have to check the protocol for the interface. This lets you know which of the connecting plug's pins control which functions. So you have to make sure that the serial interface and the modem are "plug- and pin-compatible."

TALK-TALK

In considering which modem to buy, you'll want to pay attention to a few important communications features. One of the most important of these is the duplex feature: is the modem half-duplex or full-duplex? "Duplex" refers to the capability of transmitting information both from sender to receiver and back again—that is, two-way conversation. A half-duplex mode means that the modem can send or receive information, but not both at the same time. So even though the modem is capable of two-way communication, in half-duplex, it is only using one-way communication at any given moment.

By way of analogy, if you were in a half-duplex phone conversation, while you were talking the other person could



Hayes Smartmodem 1200

only listen. He couldn't say anything; if he did, you'd be cut off and it would be his turn to speak and yours to listen. Full-duplex, also called "echoplex," is the equivalent of normal phone conversation in which both parties can talk and listen at the same time. When you type a message in full-duplex mode, your computer—via the modem—is sending out each character, and the receiving computer/modem system is echoing each character back to you. So what you see on the screen as you're typing your message is actually the *echoing* of your message by the other computer. In half-duplex, the message you type on the screen is your message only; and has nothing to do with what the other computer is receiving.

The majority of modems available have the full-duplex mode; many have both. You have to make absolutely sure that when you are transmitting information, the receiving computer is in the same mode as you are. If you are using half-duplex mode and the receiving computer is expecting full-duplex, it will echo your message back to you and all your characters will be repeated.

HOOKING UP

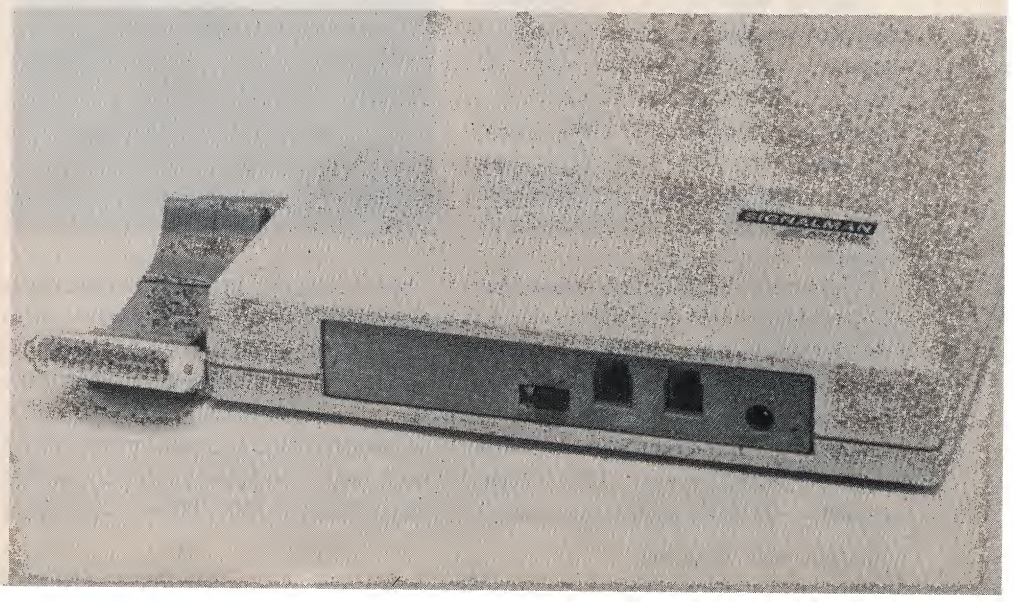
You should also know about the difference between acoustic and direct connect modems. The current trend is towards direct connect modems, but there are still a number of acoustic units available. An acoustic modem is one which requires a coupler—a gadget with two cups that fit over your telephone handset. You have to manually dial the telephone number you're reaching, and usually you can't operate the acoustic modem if you're not in the room at the same time.

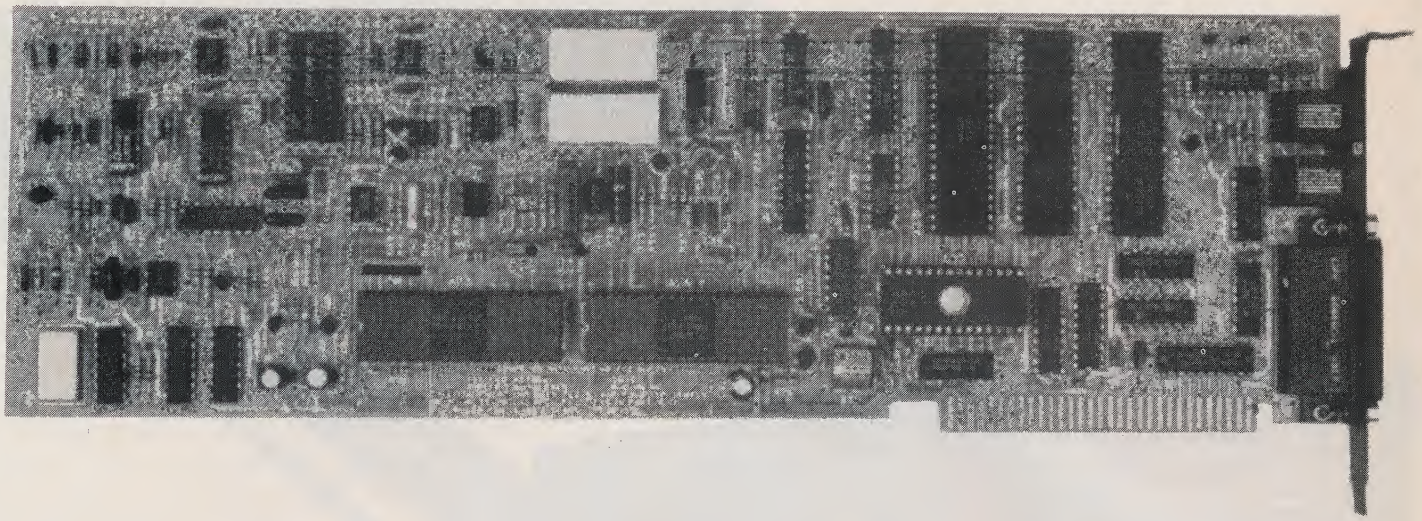
The major advantage of the acoustic modem is that it's usually less expensive than the direct connect type. Also, it's portable—you don't need a special kind of jack to use it, so it can be taken anywhere.

The direct connect modem connects right into your telephone wall jack or the telephone itself without requiring a coupler. The direct connect modem can operate with no one in the room, and most, if not all, modems of this type have an auto-dial feature—you don't have to touch the telephone to dial your party.

For the most part, acoustic modems have very few special features, while direct connect modems have them in abundance. These include such things

Signalman Modem





Rixon Modem

as auto-dial and auto-redial, auto-answer, auto-disconnect (after the transmission is finished, the modem disconnects itself), the ability to switch over to voice mode during a data transmission call, on-line telephone directory, and even (for one of the most expensive direct connect modems) a programmable dialer.

THE INS AND OUTS

There are two types of direct connect modems—internal and external. An internal direct connect modem is a printed circuit board which fits into one of your computer's expansion slots, like the serial interface. Rixon's PC212A, made specifically for the IBM PC, is an internal direct connect modem (Fig. 3) that comes with a software disk which lets you store up to ten phone numbers, automatically answer the phone, and provides auto-redial as well.

Anchor Automation manufactures a series of external modems, the latest of which is their Signalman Mark XII (Fig. 2). The external modem is a separate unit which you place outside the computer. The Mark XII lets you choose between half- or full-duplex mode, and has both auto-dial and auto-answer.

The only substantial difference between internal and external modems is the space taken up. If you are at a real premium for space, you may prefer the internal type, but usually external modems are not very large. You may like the efficiency of the internal modem—it fits right into the computer and, in essence, becomes a part of it.

HOW'S YOUR BAUD?

Another feature you'll want to know about is baud rate. This is the speed at which data is transmitted. Currently there are three baud rates used in personal computer networking: 110, 300 and 1200 Baud. Three hundred Baud translates as roughly 300 bits per second, and is the standard rate found on most personal computer modems. The 110 rate is slowly being phased out, and the 1200 rate is becoming increasingly available.

Usually, though not always, 1200 Baud is found on more expensive

"business type" modems, whose use is oriented towards professionals who need information quickly. A good example of the business type modem is the Hayes Smartmodem 1200 (Fig. 1), an external direct connect modem with both half- and full-duplex modes that can operate at 110, 300, or 1200 Baud. The Signalman Mark XII, mentioned above, also provides the user with all three transmission speeds.

When modems first became available for personal computers, they came exclusively from AT&T. Now that any company can sell them, the modem user has to make sure that the modem he buys conforms to the original communications protocol standards established by Bell. For speeds up to 300 Baud, the protocol is Bell 103, and this turns out to be the most common personal computer modem protocol. For high-speed modems, the Bell protocol is 212 or 212A. This means that if you buy a unit like the Hayes Smartmodem 1200, or the Anchor Signalman Mark XII, with all three baud rates to select from, that unit will have to conform to both the Bell 103 *and* 212 protocols.

YOU CAN BANK ON IT

The most common reason for buying a modem is to either access one or more data bases or to transfer files. The home user who wants to access specific data banks may or may not want to have a high-speed modem, depending on how quickly he wants the information and how much he is willing to spend. As we said before, high-speed modems will always cost more than those with top transmission speeds of 300 Baud. And, as stands to reason, the more special features the modem has, the more it will cost. The business professional who wants to transfer files will probably be most interested in a high-speed modem with a number of special features. These

may include—in addition to the ones already mentioned—sophisticated integrated software which allows the user to do things like emulate other ports (IBM intelligent terminals, for example), choose between command or menu-driven processing, log-on automatically to frequently used data bases or bulletin boards, provide a call history for a specified time period, and even offer an independent text editor for writing and storing up to ten pages of memos, letters, and other written material for eventual transmission.

COMMUNICATIONS SOFTWARE

All of the above features are found on the PC Express, a combined hardware/software communications package from Intelligent Technologies designed expressly (so to speak) for the IBM PC. PC Express features an internal direct connect modem with 300 Baud capability, but with interface capacity to handle transmissions from IBM mainframes at up to 19.2K (thousand) Baud. Clearly, this package is meant for the professional working in a large organization who regularly needs to manage significant information flow on a day-to-day basis.

PC Express demonstrates a current trend in communications for the personal computer—the availability of integrated hardware and software from a single vendor. Other companies providing this combination are U.S. Robotics (Password modem, Telpac software), SSM Microcomputer Products (Transmodem, Transend software) and Hayes, whose Smartcom II software was produced specifically for the Smartmodem 1200, mentioned earlier. Smartcom II is menu-driven, and allows the user to store data at the same time he is communicating. He can store phone numbers, as well as data base information which allows him to perform automatic log on to The Source, and the Dow Jones News Retrieval Service. And, he can not only transfer files, but also create, delete, and print them.

THE COST OF CONVENIENCE

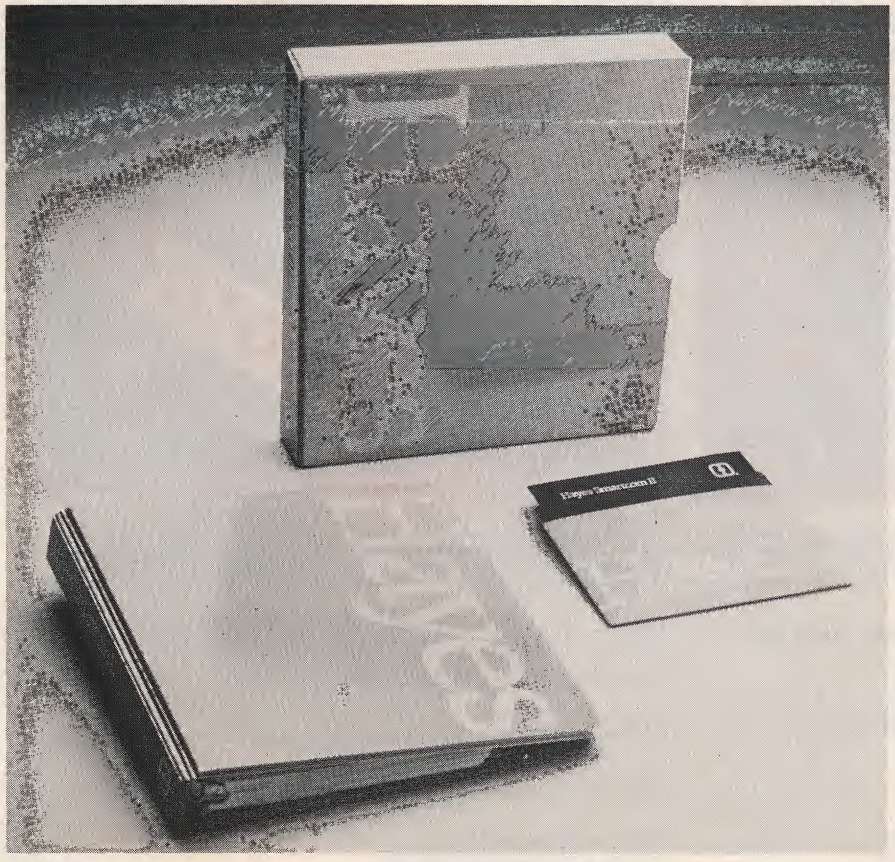
How much will a modem cost you? To give you an idea of the range of prices involved, the Commodore VIC modem —made only for use with Commodore computers (both the 64 and the VIC-20) is discounted to about $60. Intelligent Technologies' PC Express, on the other hand, goes for $895, and if you want IBM terminal emulation as part of the package, you'll have to fork over $1295. Some vendors, like Anchor Automation and SSM Microcomputer Products, offer special deals on subscriptions to well-known data bases like The Source and Compuserve as part of the package you buy.

In general, if you are purchasing a direct connect modem with the most commonly available special features (auto-dial, auto-answer, auto-redial), you should expect to spend between $300 and $600. Modems that retail on the high end of that range will probably have a high-speed rate available; those on the lower end will almost definitely not. And you should be able to buy just about any acoustic modem for under $200.

Make sure you know exactly why you want a modem before you set out on your communications shopping, and keep in mind that if you're buying a modem only, you 'll have to spend an additional amount for software. How much will software cost? Again, there is a range.

If you have a Commodore VIC modem, the communications program comes with it at no charge. If you have an Apple II series computer (II, II+, IIIe) or Apple III computer, you can go all the way up to $275 for SSM Microcomputer Products' Transend 3. What do you get for $275? File transfer with error checking, electronic mail from one Apple to another, and 30 days of free access to the Dow Jones News Service and no charge for subscription to The Source. You also get a manual with a section entitled, "For those who don't read manuals: 5 Easy Steps to Communicating."

For the time being, if you want to open your electronic doors to the outside world, you'll have to get a modem and communications software. Will this always be true? The new Kaypro IV transportable computer comes complete with a built-in 300 Baud modem and serial interface card, and is only one of a few such personal computers on the market today. Building a modem into a computer is an interesting development, and one worth watching. In the mean time, there's an enormous world of information waiting to be tapped into—all you have to do is plug into it and COMMUNICATE. ●



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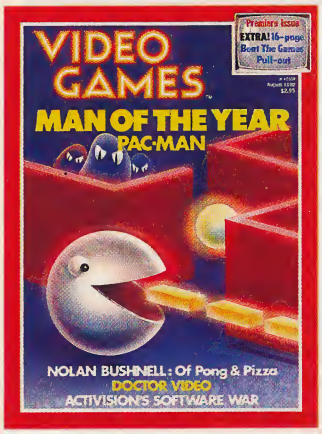

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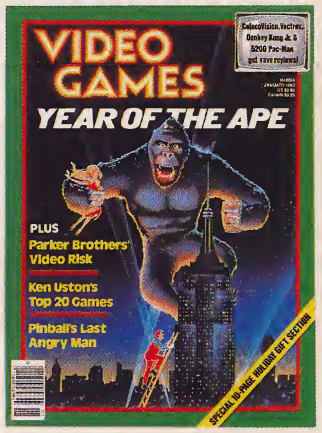

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Joysticks; E.T.; Raiders; Demon Attack; AMOA; Atari, Imagic & Coleco in court; Beating Top 15 Coin-Ops

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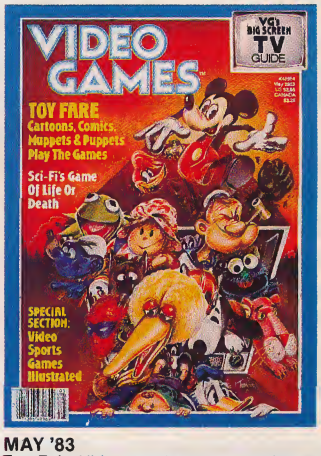
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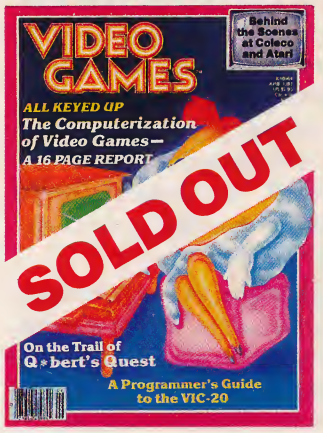
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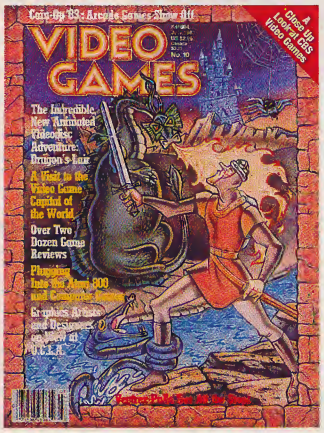

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GUIDING PORTABLE BUGS?
Three Book Reviews

By PAULA S. STONE and RONALD TERRY

Have you ever tried to keep track of all the software for a popular computer like the IBM PC (or XT) or even the new computers that are available? To say the least, it's not an easy task. Companies and products drop out of sight until they catch their breath and you see them reappear from time to time; others drop out of the market altogether.

What I've done this month is try to simplify the task for you on two fronts. The first: the IBM PC/XT market. To help you make well-informed choices about those products you may be considering buying, Micro Information Publishing has (thankfully) introduced its *IBM Personal Computer & XT/The Software Guide*. This encyclopedia-sized (and reasonably priced) information source is a PC/XT user's "Wish Book" And what a surprise—as a bonus, Micro Information Publishing is offering a free telephone information resource service to buyers.

The other front is the portable computer market. Sybex offers *Portable Computing: Choosing One and Using One,* giving you the background (complete descriptions of over forty popular portable computers) to help you shop wisely and help you decide if you can benefit from a portable computer.

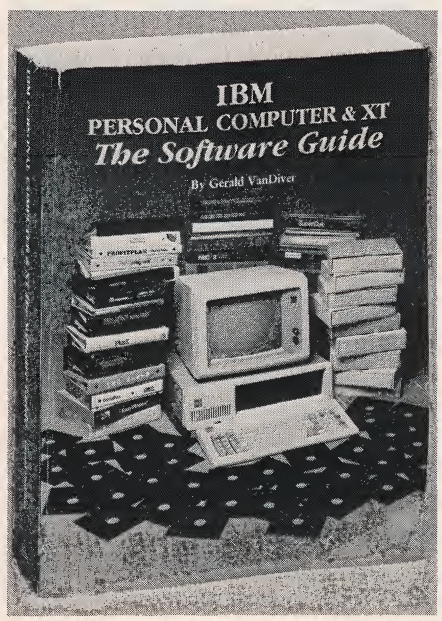
Our third book, *Bugs*, is just for fun. It's a science-fiction thriller about those insidious bugs that reside in computer programs. *Bugs* is entertaining and it also presents some important questions about where technology is headed.

IBM Personal Computer & XT/The Software Guide *by Gerald Van Diver, Micro Information Publishing, Inc. (Prior Lake, MN), 1983. 1002 pp. (softbound) $24.95*

IBM Personal Computer & XT/The Software Guide is a comprehensive and affordable directory of software, peripherals, supplies and more for IBM PC and XT users. In over 1000 pages, author Gerald Van Diver lists over 2950 programs from over 1165 software publishers in over 35 major categories and 150 subcategories. The message is massive. In a directory whose size rivals those of the phone company's four major cities, *The Software Guide* conveniently puts together in one easy-to-use source nearly everything you would need (or want) to know about IBM PC/XT products to help you make choices for your computer systems at home or work.

The products, arranged alphabetically, cover a wide range of general types of software (called "horizontal" software), such as accounting, communications, database managers, home management, education, word processing, and, of course, games and graphics. *The Software Guide* also includes more specialized areas—engineering, math, and computer languages— and those packages for specific industries (called "vertical" software) like chiropractic records, church management, donation record keeping, and post offices.

It's not all software and there are lots of pleasant surprises. One section is devoted to peripherals ranging from the familiar devices (joysticks, floppy disk drives and hard disks) to the more exotic offerings (light pens, speech synthesizers, and even carrying cases). There are also enough printers, plotters, and monitors listed to suit nearly anyone's need or fancy. And yet another section tells you who to contact about disk cleaners, power protectors (to protect computers against "glitches" from rain storms and such), and other maintenance items.



The Software Guide is a virtual "bible" of products and a rich source of ideas on what's available for your PC system. Entries list (when available) the product name, manufacturer and cost. The book also gives the language the program is written in, how much memory and any special hardware (such as a single-sided or double-sided disk drive or graphics card) that may be required. A description of the package offers an overview of the product, what it can do and for whom, plus its strengths and weaknesses. Descriptions are uneven—the length and thoroughness varies considerably, although each product has been tested by the National Software Review Board.

The directory works like this: Sup-

pose you are looking for a game to help children learn math and happen to know the name of a particular game or its publisher. You can then turn to the product name or publisher index in the back of the book and turn directly to the page the product entry is on. If you don't have a particular product in mind, you can look up the product category, "education," in the table of contents and search the subcategories until you find the matching subheading. The titles of products are given in the table of contents so you can decide which ones you are interested in looking up from the title or turn to those pages in the guide that cover a specific product area.

Micro Information Publishing recognizes that products for the PC come into being almost overnight and certainly faster than anyone can keep track of, so that often there wasn't time to include them in the *Software Guide*. To help PC users, Information Publishing offers a free Software Location Service that you can call to locate hard-to-find products or those that weren't included in the most recent software Guide. The Software Location Service representative will tap into Micro Information's database and give you the appropriate information to help you locate the product as well as the experiences (both good and bad) that other users have had.

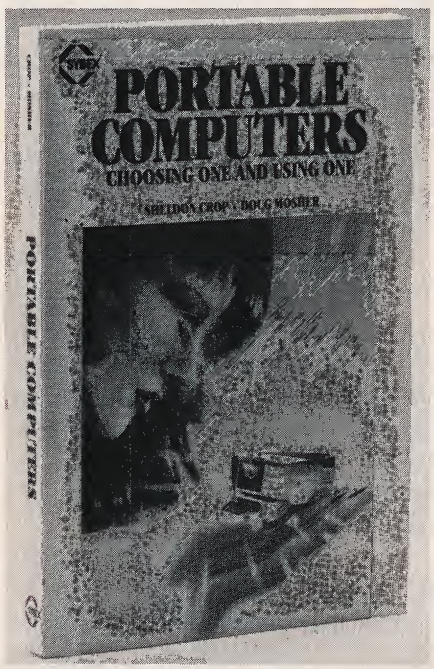
For the price, *The Software Guide* (and free Software Location Service) is a smart investment in terms of time and money. —*Paula S. Stone.*

***Portable Computers: Choosing One and Using One** by Sheldon Crop and Doug Mosher. Sybex (Berkeley, CA), 1984. 128 pp. (softbound) $7.95.*

Portable computers are one of the fastest growing areas of the computer market. Technology has developed rapidly; computers have quickly become smaller and more affordable so that now people with little knowledge or concern about the newest advances in micro-electronics find themselves able to afford a computer that takes up as little space as a typewriter. (Some even fit in a briefcase).

Portable Computers: Choosing One and Using One by Sheldon Crop and Doug Mosher is more than just a guide to portable computers. Written in an easy-to-read, conversational style with the non-technical beginner in mind, it points out that computers can greatly improve your productivity. Increased productivity translates into more money, especially for those of you who use a portable computer for business or professional reasons. In fact, some of you may want to consider buying a portable computer, since the authors show you how a computer can even pay for itself in a short time.

To help you begin, author Sheldon Crop introduces you to several of his



personal friends to show you how "real" people in various professions use portable computers in their daily lives.

One of these friends, a lawyer, maintains communication with his office clear across the country, prepares opening remarks for an afternoon court date, and takes action to protect the interests of a distant client—all with the help of his Otrona Attache. Another friend, a sociologist, sends and receives research material with his wife-associate while attending a convention, completes his latest book, and transmits it instantaneously to his typesetter to meet a deadline. After reading these case histories and others, its easy to imagine how you can use portable computers for fun and profit.

Portable Computers tells you what you need to know without overwhelming you with complex material. It describes basic computer terms and functions (like RAM, ROM and CPU) and the various kinds of software such as word processors, spreadsheets and communications packages. You learn how a computer works and how to determine what one model can do and what another can't do. You learn all this and more, with the help of lots of photographs and a cartoon character dubbed "the spirit of computing," a horned and haloed gremlin with a pointed tail and mischievous grin, no doubt to symbolize the mixed blessing and curse of owning a computer since, as the authors point out, computers are not yet as reliable or predictable as more common appliances.

The descriptions of over forty different portable computers along with such peripherals as modems, printers, and cables can be of interest even to long-time computer owners who would like to make the transition to the smaller models. Specific information is given on prices and physical size of each machine, the type and size of the display that you'd need for each computer, and what kind of file system it uses (like floppy disks) and how much memory is on each. The book also lists the software that may come with the computer (since almost three-fourths of them come equipped with a disk operating system, spreadsheet and/or word processor) and what's available—in short, all you need to know to determine if a particular model fits your needs.

The authors make it clear that nothing can substitute for careful shopping at a reputable store where you can try out different machines, get straight information and competent demonstrations from dealers and technical personnel, and be assured of receiving repair service when you need it.

Buying a computer is not like buying a toaster. You have to know what you want, how to express it, and what to look for, and look out for when you walk into a computer store. *Portable Computers* is an excellent source of information for the aspiring portable computer owner; it gives you the back-

ground you need on what computers are all about, inside and out, so you can go out and meet computer salespeople on their own turf and make an informed purchase of the product that will best suit your particular needs.

It's a short book, easily read in one sitting, so you don't have to make a major investment in time to pick up some useful information. If you're in the market for a portable computer, but know nothing about them, this is one book you need. —*Ronald Terry*

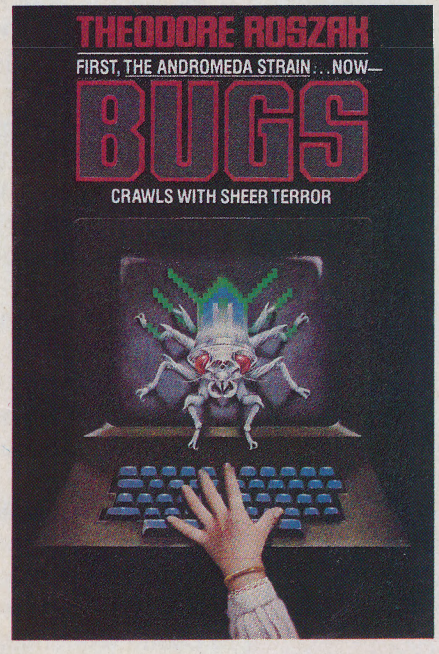
***Bugs** by Theodore Roszak. Pocket Books (New York), 1981. 314 pp. (softbound) $3.50.*

The menacing computer is nothing new to science fiction. However, with the boom in the computer industry and the daily impact the machines have made on our lives, fiction dealing with such terrors can become all the more real and seem closer to home. The novel *Bugs* by Theodore Roszak does not take place in some futuristic setting; it is our present computerized society and takes this society just one step further into total centralization.

The story begins with the opening in Washington D.C. of a national computer center popularly called the "Brain." In the midst of a growing controversy over the loss of individuality and privacy caused by such a centralized information network, the Brain and computers all over the world begin generating strange, unclassifiable "bugs" that pour out by the thousands, attack and kill people, but cannot be killed themselves. (A warning: The book is quite violent.) The bugs are killing the people who operate the computers and those who come near the machines, making computers very dangerous. Brain director Tom Heller charges himself with the task of stop ing this infestation before the global computer system is destroyed and modern civilization itself collapses without the support of this system. His efforts form the thrust of the book's action.

Bugs is full of enough action and mayhem to keep adventure-lovers satisfied. Heller finds himself involved in a clash of ideas and begins to question his beliefs about computers and life in general. So despite the wild implausibility and grotesqueness of its basic premise, the novel turns out to be a rather serious study of where our society is headed.

Heller starts out as the staunch supporter of reason and logic, the "way" of science and technology. He is the public defender of the computer system, and his arguments express the wonder of what computers can and will be able to do. He excitedly teaches how fast computers can perform bips (billions of instructions per second) and looks ahead toward an ultra-intelligent machine that thinks better than people do.



Through Heller's explanations the reader can pick up some basic computer concepts such as the difference between hardware and software and, appropriately enough, the existence of bugs, which are imperfections in a program. More than anything else Heller emphasizes how much our society depends on computers in many important areas of life—business, defense, education, etc.—and what a disaster it could be for the system to fail, since so much important commercial, banking, and military data is tied up in it and can't be retrieved if it fails.

But Heller's beliefs are challenged when he becomes involved with a mystic cult called Earthrite, suspecting that its members hold the key to what is happening to the world's computers. They explain to him an alternate way of looking at the world, the "way" of intuition, love, beauty, nature, ecology, poetry, and magic. And his attraction to one member, Jane Hecate, intensifies his inner conflict.

As Earthrite explains it, the disaster facing the world is the result of magic gone wrong and can actually be traced back to Heller himself; while appearing on a children's show, he unwittingly fostered fears of computers in a little girl participating in the program by characterizing bugs in computers as actual insects. This little girl, Daphne, turns out to be Jane's daughter, a child raised in Earthrite and possessing strong powers she cannot control. This her fears which materialize to terrorize the world. Earthrite promises to try to reverse the magic, but are the members sincere or are they purposely trying to destroy the technological society they do not approve of?

Should Heller give any credence to their mystical philosophy at all? Perhaps the bugs are independent of any outside influence. If so, are they working, ultimately, for good or for evil, for ridding our society of a dangerous technology or for destroying our civilization? As the story progresses, the mysteries and issues become complex, and Heller has a hard time sorting them all out.

The book takes us through Heller's confusion as the world crisis worsens and he is sucked deeper into the Earthrite connection. All he is sure of is that the bugs are real, although they have no cellular or atomic structure, and that something has to be done to stop them. On one side the mechanizations of government intrigue pull at him and on the other is Earthrite, while below him the foundation of his own belief system is collapsing.

Bugs is a fast-moving, tightly-plotted science fiction/horror tale, but it is a lso a study of one man's attempt to find what is real in the world and how life should be lived. In its interesting blend of technology and mysticism, it can provide a little thoughful entertainment, but only for those not too turned off by its violence and gore. —*R. T.* ●

SOFTSEL HOT LIST

The Top 10 Educational Programs

1 **Master Type** • Scarborough • AP, AT, IBM, C64
2 **. . . The Most Amazing Thing** • Spinnaker • AP, AT, IBM, C64
3 **Type Attack!** • Sirius • AP, VIC, AT, IBM, C64
4 **Typing Tutor II** • Microsoft • AP
5 **Math Blaster!** • Davidson & Associates • AP, IBM, C64
6 **PC Tutor** • Comprehensive • IBM, C64, TIP
7 **Word Attack!** • Davidson & Associates • AP, IBM, C64
8 **Alphabet Zoo** • Spinnaker • AP, AT, IBM, C64
9 **Typing Tutor & Word Invader** • Academy • VIC, C64
10 **Kindercomp** • Spinnaker • AP, AT, IBM, C64

Hardware and Accessories

1 **Koalapad Touch Tablet** • Koala • AP, VIC, AT, IBM, C64
2 **Smartmodem 1200B** • Hayes • IBM
3 **Micromodem //E w/Smartcom** • Hayes • AP
4 **Six Pak Plus** •AST Research • IBM
5 **Joystick** • Wico • AT
6 **System Saver** • Kensington • AP
7 **Smartmodem 1200** • Hayes
8 **Hercules Graphic Card** • Hercules • IBM
9 **Lemon** • Electronic Protection
10 **The Boss** • Wico • AT

Systems and Utilities

1 **Simon's Basic** • Commodore • C64
2 **Prokey** • Rosesoft • IBM
3 **Basic Interpreter** • Microsoft • CP/M, IBM, MAC
4 **Norton Utilities** • Peter Norton • IBM
5 **Crosstalk** • Microstuf • CP/M, IBM

Books

1 **Commodore 64 Reference Guide** • Commodore
2 **Using 1-2-3** • Que
3 **Your Commodore 64** • Osborne/McGraw-Hill
4 **Apple II User's Guide** • Osborne/McGraw-Hill
5 **WordStar Made Easy** • Osborne/McGraw-Hill

The Top 10 Business Programs

1 **1-2-3** • Lotus • IBM, DEC, VTR, TIP, WNG
2 **Multiplan** • Microsoft • AP, CP/M, IBM, MAC
3 **PFS: File** • Software Publishing • AP, IBM, TIP
4 **Tax Preparer** • Howard Software • AP, IBM
5 **PFS: Write** • Software Publishing • IBM, AP
6 **dBase II** • Ashton-Tate • AP, CP/M, IBM, DEC, EPS, TIP
7 **WordStar** • MicroPro • AP, CP/M, IBM, DEC, TIP
8 **PFS: Report** • Software Publishing • AP, IBM, TIP
9 **Multimate** • Softword Systems • IBM
10 **Open Access** • SPI • IBM

The Top 20 Computer Games

1 **Flight Simulator II** • Sublogic • AP
2 **Zork I** • Infocom • AP, AT, CP/M, IBM, C64, DEC, TIP
3 **Lode Runner** • Broderbund • AP, VIC, AT, IBM, C64
4 **Quest for Tires** • Sierra On-Line • AP, AT, C64
5 **Blue Max** • Synapse • AT, C64
6 **Frogger** • Sierra On-Line • AP, AT, IBM, C64, VIC
7 **Donkey Kong** • Atarisoft • AP, AT, IBM, C64
8 **Boulder Dash** • First Star • AT
9 **Millionaire** • Bluechip • AP, AT, C64, IBM, CP/M, DEC, TIP
10 **Temple of Apshai** • Epyx • AP, VIC, AT, IBM, C64
11 **Dimension X** • Synapse • AT
12 **Flight Simulator** • Microsoft • IBM
13 **Choplifter** • Broderbund • AP, AT, C64
14 **Deadline** • Infocom • AP, TRS, AT, CP/M, IBM, C64, DEC, TIP
15 **Wizardry** • Sir-Tech Software • AP
16 **Zaxxon** • Datasoft • AP, TRS, AT, C64
17 **Pac Man** • Atarisoft • AP, AT, C64, IBM
18 **Zork II** • Infocom • AP, AT, CP/M, IBM, C64, DEC, TIP
19 **Castle Wolfenstein** • Muse • AP, AT, C64
20 **Ultima III** • Origin Systems • AP, AT

The Top 10 Home Applications

1 **Bank Street Writer** • Broderbund • AP, AT, IBM, C64
2 **The Home Acct.** • Continental • AP, TRS, AT, IBM, C64, TIP
3 **Dollars & $ense** • Tronix/Monogram • AP, IBM
4 **Homeword** • Sierra On-Line • AP, C64
5 **Easy Script 64** • Commodore • C64
6 **Easy Spell 64** • Commodore • C64
7 **S.A.M.** • Tronix/Monogram • AP, AT, IBM
8 **The Electronic Checkbook** • Timeworks • C64
9 **Tax Advantage** • Continental • AP, AT, IBM, C64
10 **The Manager** • Commodore • C64

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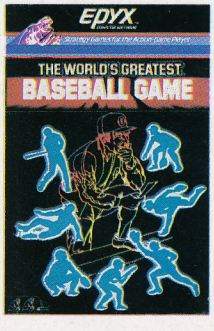

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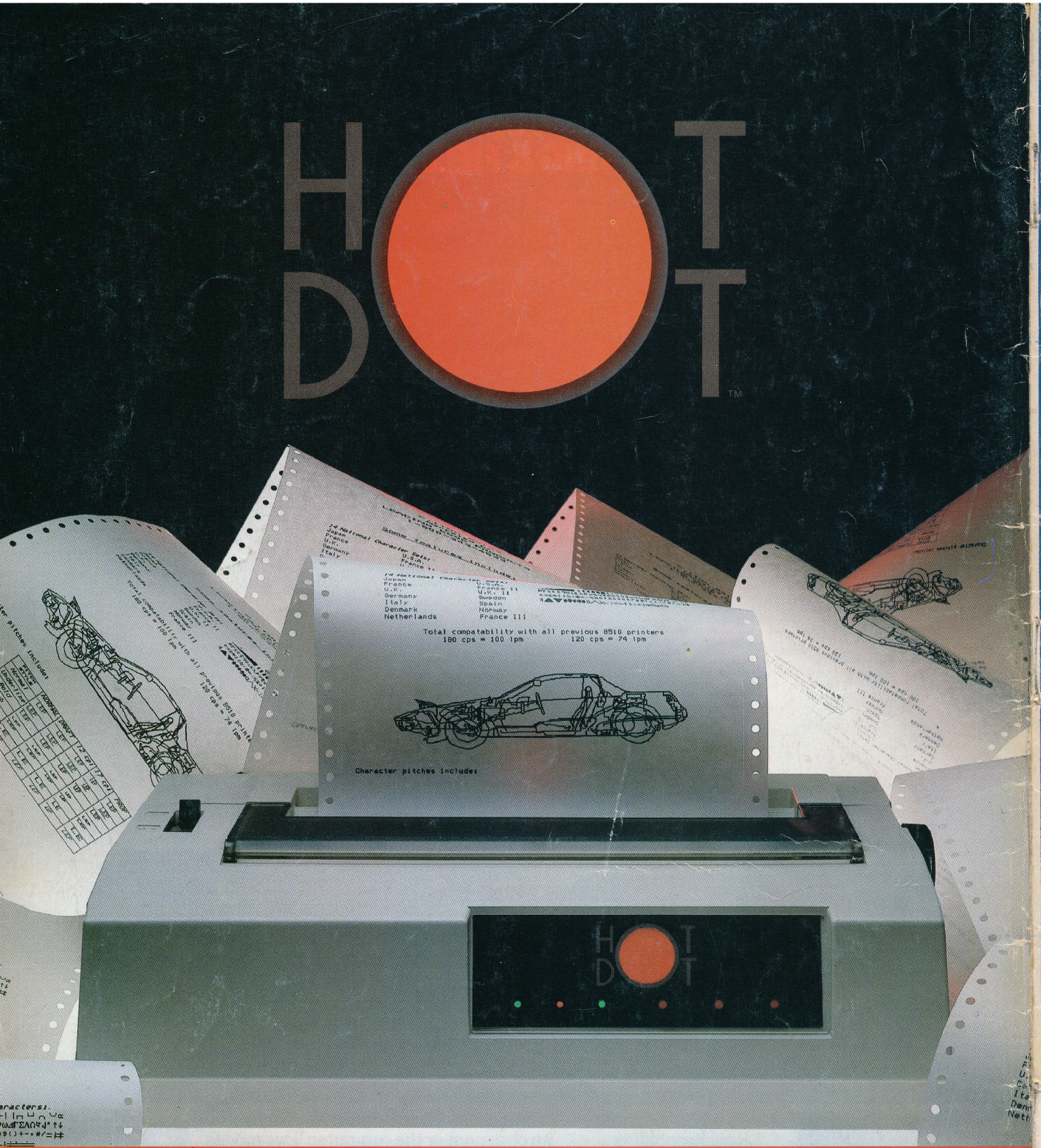

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